

EV-S650PS

RMT-439

SERVICE MANUAL

West Germany Model



Remote commander RMT-439 is available as a unit, but as individual parts the battery case and of commander is only available.

Video 8

SPECIFICATIONS

System

Video recording system

Rotary two-head helical scanning
Helical scanning FM system

Audio recording system

Normal recording Standard: Rotary head FM system (monaural)
PCM: PCM system (2 channels)

Digital multi audio recording

PCM system (2 channels, 6 tracks)

Colour system

CCIR system B,G and H, PAL colour
DDR SECAM to PAL colour, convertible

Usable cassettes

8 mm video format cassette

Tape speed

SP: Approx. 20.051 mm/sec.
LP: Approx. 10.058 mm/sec.

Recording or playback time

SP: 1 hr. 30 min.
LP: 3 hr.
(P5-90)

Fast forward time

Approx. 2 min. 30 sec. (P5-90)

PCM, Digital multi audio system

Sampling frequency 31.25 kHz

Audio frequency 20 Hz–15 kHz

Dynamic range More than 90 dB

Wow and flutter Less than 0.005 % RMS

Tuner section

Channel coverage

VHF E2–S20
UHF E21–E69

Programming system

30 programme-memories

RF output signal

UHF channels E30 to E39 (variable),
75 ohms, unbalanced

Aerial input

75-ohm, asymmetrical aerial socket

Inputs and outputs

Video input

VIDEO IN

phono jack
1 Vp-p, 75 ohms, unbalanced, sync negative

Video output

EURO-AV

21-pin (pin 19)
1 Vp-p, 75 ohms, unbalanced, sync negative

Audio inputs

AUDIO IN

Phono jack
47 kilohms, –10 dBs (0 dBs =
0.775 V rms)

Audio outputs

EURO-AV

21-pin (pins 1 and 3)
Output impedance less than 1
kilohm –6 dBs with 10 kilohms
load, unbalanced

—Continued on next page—



8 STEREO VIDEO CASSETTE RECORDER

SONY®

| | | |
|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AUDIO OUT | Phono jack Output impedance less than 1 kilohm –10 dBs with 47 kilohms load, unbalanced | General Power requirements 220 V AC, 50 Hz Power consumption 34 W Operating temperature 5 °C to 40 °C (41 °F to 104 °F) Storage temperature –20 °C to +60 °C (–4 °F to +140 °F) Dimensions Approx. 430 × 89 × 328 mm incl. projecting parts and controls Weight Approx. 7.1 kg |
| CONTROL S IN Microphone input | Minijack Minijack –60 dBs, for low-impedance microphone | |
| HEADPHONES jack | Stereo minijack –20 dBs, 8 ohms | |
| Timer Clock Time indication Timer setting | Crystal lock 24-hour cycle Only for recording 6 events (3 weeks max. adjustable for any day or for all 7 days of the week) | Accessories supplied 75-ohm coaxial cable for TV connection (1) Connecting cord RK-74H (1) Screwdriver (1) Remote Commander RMT-439 (1) Sony battery SUM-3 (NS) (2) |
| Remote Commander RMT-439 Remote control system Power requirements Dimensions Weight | Infrared control 3 V DC, 2 R6 (size AA) batteries Approx. 52 × 20 × 175 mm (w/h/d) incl. projecting parts and controls Approx. 120 g incl. batteries | Note This appliance conforms with EEC Directives 76/889 and 82/499 regarding interference suppression. |

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING !!


COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

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SECTION 1 GENERAL

1-1. PRECAUTIONS

On safety

- Before operating, check that the operating power voltage and frequency of the unit are identical with those of your local power supply.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the mains outlet if it is not to be used for an extended period of time. To disconnect the lead, pull it out by the plug. Never pull the lead itself.
- The unit is not disconnected from the mains (AC power source) as long as it is connected to the mains outlet, even if the unit itself has been turned off.

On installation

- Allow adequate air circulation to prevent internal heat build-up. Do not cover the holes on the top panel.
- Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit and cassette tapes away from equipment with strong magnets, as for example a microwave oven or a large loudspeaker.
- Do not place any heavy object (over 13 kg or 28 lbs 10 oz) on the unit.
- Never place any object on the tuning compartment nor on the top of the front panel.

On operation

- When the unit is not in use, turn the power off to conserve energy and to extend its useful life.
- Remove and store video cassettes after recording or playback.

On cleaning

Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution.

Do not use any type of solvent, such as alcohol or benzine which might damage the finish.

On repacking

Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

On cassette care

Store cassettes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.

If you have any questions about this unit, contact your Sony dealer.

1-2. LOCATION AND FUNCTION OF CONTROLS

Refer to the pages indicated in ● for details.

A-1

- 1 ON/STANDBY switch and lamp
- 2 Cassette holder ●
- 3 OPEN/CLOSE button ●
Press to slide out the cassette holder. Press again to slide it in.
- 4 HEADPHONES jack (stereo mini type) and PHONE LEVEL control
Connect stereo headphones (with stereo mini jack) here. Adjust the volume with the PHONE LEVEL control.

5 REMOTE SENSOR

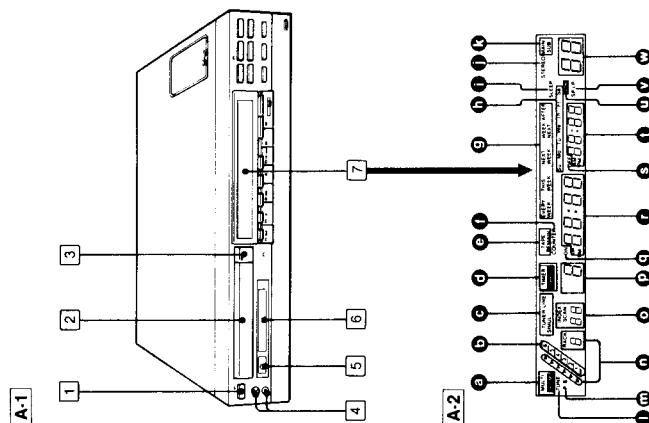
6 PEAK PROGRAM METER ●

Shows the peak input levels of the right and left channels during recording and recorded levels during playback.

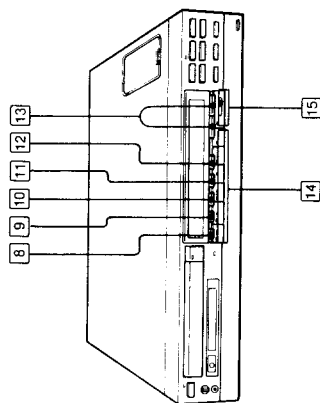
7 Display window

A-2

- a MULTI PCM or PCM indicator
- b Digital multi audio tracks indicator
- c Input signal indicator
- d TIMER REC indicator
- e TAPE REMAIN indicator
- f COUNTER indicator
- g Week indicator
- h Day of the week indicator
- i SLEEP indicator
- j STEREO indicator
- k Bilingual indicator
- l TUNE (tuning) indicator
- m P (Parallel) or S (Series) digital multi audio timer recording indicator
- n Digital multi audio track number and indicator
- o INDEX indicators
- p Timer programme position
- q Turn-on time setting indicator
- r Turn-on time of a timer recording/Tape counter/Tape remain indicator
- s Turn-off time setting indicator
- t Turn-off time of a timer recording/clock display
- u VTR indicator
- v Recording speed indicator
- w Programme number



A-3



A-3

- 8 COUNTER/REMAIN button**
Each time the button is pressed, the COUNTER and the TAPE REMAIN indicators are displayed alternately.

- 9 COUNTER RESET button**
Press to reset the tape counter to "0000".

- 10 GO TO ZERO button**
In stop mode, press to advance or rewind the tape approximately to the counter "0000".

- 11 SLEEP button**
Press to preset the turn-off time of this VTR. Playback or recording can be stopped with this timer.

- 12 ANT TV/VTR button**
Press to view the programme selected on the recorder. The VTR indicator appears in the display window (VTR mode).
To view a TV programme while recording another, press this button again. The VTR indicator disappears. (TV mode)

- 13 PROGRAM/TRACK/TIMER/INDEX buttons**
Press to:
—change the programme recording/playback
—set the clock or timer
—change the index number

- 14 Tape transport buttons and indicators**
◀◀ REW (rewind)
▶▶ PLAY (playback)
▶▶▶ FF (fast forward)
■ STOP (stop)
|| PAUSE (pause) / ▶▶ STILL (still)
x2 (double speed playback)

- 15 REC (recording) switch**
Slide to the right to start recording.

Inside the front panel

A-4

- 16 MIC (microphone) jack (mini type)**
To record from this jack, display LINE by pressing INPUT SELECT.

- 17 REC LEVEL controls**
Slide to adjust the level of the PCM audio recording.

- 18 EDIT button and lamp**
Normally keep the lamp off.
When editing a tape onto another recorder (or vice versa), press the button so that the lamp lights up.

- 19 AUDIO MONITOR selectors**
During playback or recording, set to the appropriate position to monitor the desired sound.

- MAIN/SUB/MLS selector**
When monitoring bilingual programmes or playing back a bilingual tape, press to display:
MAIN: to listen to the main language
SUB: to listen to the sub language

- MLS:** to listen to the main language from the left speaker and the sub language from the right speaker.
A stereo tape with a pilot signal (the STEREO indicator appears) is played back in the stereo mode regardless of the position of this selector.

PCM/MIX/STD selector

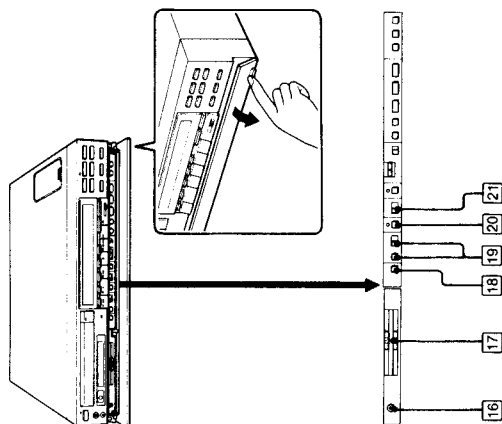
- PCM:** to play back the sound on the PCM track.
When nothing is recorded on the PCM track, the sound recorded on the standard track is played back regardless of the position of this selector.

- MIX:** to play back the sound on the PCM and standard tracks simultaneously.

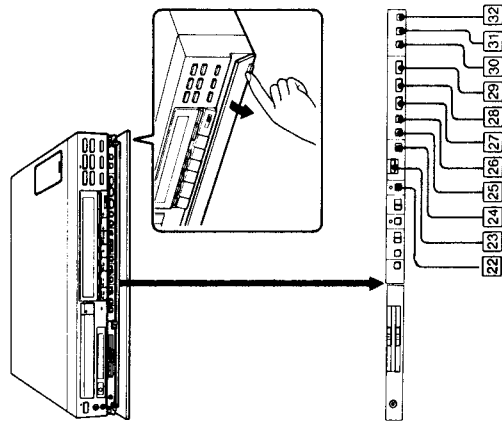
- STD:** to play back the sound on the standard track.

- 20 AUDIO DUB button**
Press to start recording on the PCM track of any recorded video tape.
Set PCM MODE **21** to NORM.

- 21 PCM MODE selector**
Select the method of PCM audio recording.
Set to: **NORM** for normal recording on the PCM track.
DIGITAL MULTI P (parallel) for timer recording from the beginning of each track.
DIGITAL MULTI S (series) for continuous timer recording in one of six tracks.



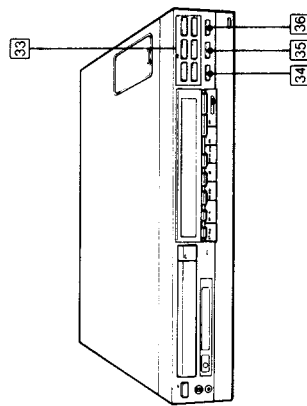
A-5



A-5

- 22 PFS (Picture Fine Select) button and lamp**
Normally, keep the lamp off.
If the playback picture of a tape recorded on other VTRs (which do not use the four-video heads system) is distorted or has streaks, press so that the lamp lights up.
- 23 SHARPNESS control**
Use to adjust the sharpness of the picture if necessary.
Normally set the control at the center detent position.
- 24 VPS (Video Programme System) switch**
Set to ON to activate the VPS in the timer recording.
- 25 CLEAR button**
Press to cancel a timer setting.
- 26 CHECK button**
Press to check the contents of the timer presettings.
- 27 TIMER SET button**
Press to start the setting or resetting of timer programmes.
- 28 NEXT button**
Press to advance to the next item to be set when setting the timer or the clock.
- 29 TIMER REC button**
Press after programming VTR for timer recordings so that the timer activates. To deactivate the timer, press again.
- 30 INPUT SELECT button**
Press to display the desired input signal indication in the window.
TUNER: to record TV programmes
SIMUL: to record TV programmes and signals from the AUDIO IN jacks.
LINE: to record audio/video signals from the AUDIO IN/VIDEO IN jacks on the rear panel or to dub only audio signals from AUDIO IN or MIC jacks.
- 31 REC MODE (record mode) selector**
This selects the recording speed, SP or LP. The recording time of any given cassette in the LP mode is 2 times that in the SP mode.
The playback speed is automatically set regardless of the setting of this selector.
- 32 CLOCK SET button**
Press as the first step to set the internal clock.

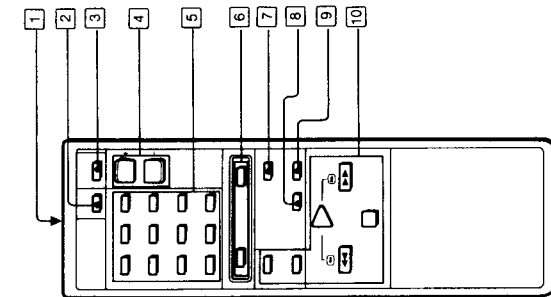
A-6



On the front panel

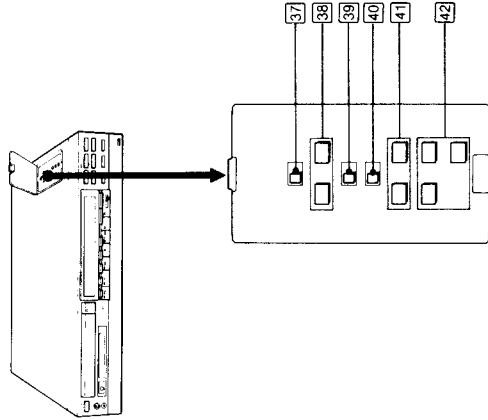
- A-6**
- 33 DIGITAL MULTI AUDIO buttons and indicator**
Press the number button (1-6) of the track to be recorded or played back for digital multi audio recording and playback.
These buttons are effective only when the DIGITAL MULTI AUDIO indicator is lit.
- 34 INDEX button**
Press to activate the index function.
For index scan, press **▶▶** or **◀◀** while flashing INDEX and SCAN indicators.
For index search, press **▶▶** or **◀◀** while the index number is lit.
To release index function, press **■** (stop).
- 35 INDEX MARK button**
Press to mark an index signal at the desired point during recording or playback.
- 36 INDEX ERASE button**
To erase a pre-recorded index signal, locate the index signal and press this button.

REMOTE COMMANDER



- 1 Transmitter**
- 2 ANT TV/VTR button**
- 3 ON switch**
- 4 PROG (programme) buttons**
Each time the button (+ or -) is pressed, the preset programme is selected in order.
Press + to select a higher channel programme.
Press - to select a lower channel programme.
- 5 Number buttons**
Press the desired programme number button.
For 10 through 19, press "1-" for tens-digit and then ones-digit.
For 20 through 29, press "2-" and then ones-digit.
- 6 REC (record) buttons**
For recording, press the both buttons (red and black) simultaneously.
- 7 MAIN/SUB button**
Each pressing selects MAIN, SUB or M.S (both main and sub) language of the bilingual programme or the played back bilingual tape.
- 8 TAPE REMAIN button**
Press this button during recording or playback or display the remaining time on the display window.
- 9 INDEX button**
Used for index scan to index search operation.
- 10 Tape transport buttons**
▶ PLAY
◀◀ REW
▶▶ FF
■ STOP
|| PAUSE
x2 (double speed playback)

A-7



Upper compartment

A-7

37 AUTO COLOUR SYSTEM switch

Normally set to AUTO. According to the TV programme, colour system will be switched automatically to PAL or DDR SECAM.

When editing a tape from another VTR based on PAL system, set the switch to PAL. (DDR SECAM programmes will be displayed in black and white.)

38 STILL ADJ (adjust) buttons

Adjust the still picture if necessary.

39 AUTO STEREO switch

Normally set to ON. During a stereo broadcast, the mode is automatically set to stereo. If there is too much interference, set the switch to OFF in which case all the TV programmes will be received in monaural.

40 AFT switch

Normally set to ON. The automatic fine tuning circuit locks in and maintains a sharp picture.

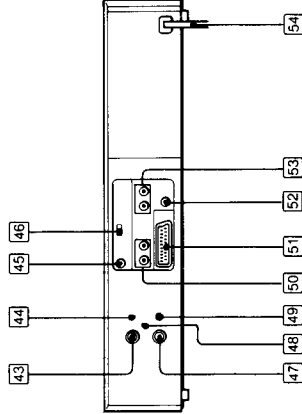
41 FINE buttons

When the AFT switch is set to OFF, press to fine tune the station.

42 SEARCH buttons

Press RESET to clear the programmed station. Press UHF or VHF to tune in a station of higher frequency.

A-8



Rear

A-8

43 AERIAL IN socket

Connect the aerial cable.

44 TEST SIGNAL switch

Set to ON to obtain a test pattern.

45 CONTROL S IN jack (mini type)

Connect to the CONTROL S output jack of other Sony products.

46 DIGITAL MULTI PLAY selector

Normally set to AUTO.

The playback mode will be automatically set to the digital multi audio mode. If no sound is heard when playing back a tape recorded on another VTR, set to MULTI.

47 AERIAL OUT socket

Connect the aerial input of the TV receiver.

48 LOCAL/DX switch

Normally set to DX. If the TV signal is very strong, set the switch to LOCAL.

49 RF CHANNEL screw

If there is interference on the factory-preset channel for RF output and the output signal from this unit cannot be displayed clearly on the TV screen, adjust the screw with the supplied screwdriver.

50 AUDIO LINE IN (L,R) (input) jacks (phono type)

51 EURO-AV connector (21-pin)

Connect to the 21-pin connector of a VTR or a TV/monitor, or to the audio/video input of these units with an appropriate connecting cable.

52 VIDEO IN (input) jack (phono type)

53 AUDIO LINE OUT (L,R) (output) jacks (phono type)

54 AC power cord (mains lead)

Connect to an AC (mains) outlet.

1-3. ADJUSTMENTS

ADJUSTING THE TV [D-1]

One of the television programme positions must be adjusted to receive the signal from the recorder. Note that the adjustment is not necessary, however, when the VTR is connected to the AUDIO/VIDEO inputs on the TV/monitor.

- 1 After making the connections, press ON/STANDBY.
- 2 Make sure that the recorder is in the stop mode and the TV is in TV mode.
- 3 Set TEST SIGNAL at the rear of the recorder to ON. The test signal is transmitted on a channel between UHF channels 30 and 39.
- 4 Turn on the TV and select a programme position which is not being used to receive a TV station. Tune the channel until you see a clear black and white pattern on the TV screen and you hear a continuous tone. This is the recorder's test signal.

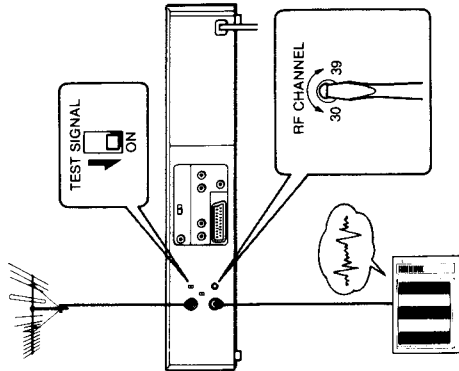
If the test picture is free of disturbance, the TV adjustment is complete. Set TEST SIGNAL to OFF.

If the test picture is not free of disturbance,

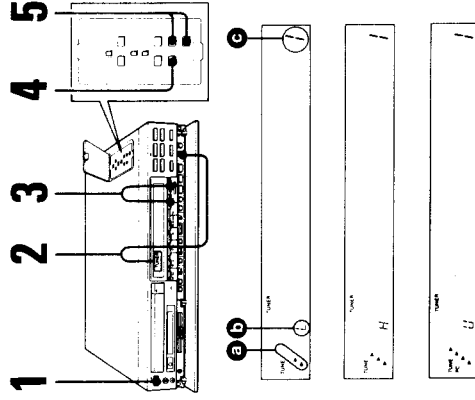
- 1 Reset TEST SIGNAL to OFF.
- 2 Adjust the channel of the TV to a channel between UHF channels 30 and 39 with the tuning control or the fine tuning control on the TV, so that the TV screen shows no picture and so that a steady rustling sound or no sound heard.
- 3 Set TEST SIGNAL to ON again.
- 4 Slowly turn RF CHANNEL on the rear of the recorder with the supplied screwdriver, until you see an undistorted test pattern on the TV screen.
- 5 Now the TV adjustment is complete. Reset TEST SIGNAL to OFF.

If you are not sure how to adjust your TV, refer to the TV's instruction manual or consult your dealer.

[D-1]



[D-2]



PROGRAMMING TV STATIONS [D-2]

Up to 30 programmes receivable in your area can be preset on this unit.

Once preset, you can select TV programmes with the +/- PROGRAM/TRACK/TIMER/INDEX buttons or the +/- PROG buttons on the Remote Commander.

- 1 Turn on the unit.
- 2 Display "TUNER" with INPUT SELECT.
- 3 Press the number button on the Remote Commander to select the programme position (0 to 29) on which the desired TV programme should be tuned in.
- 4 Press RESET in the upper compartment to clear the factory preset programmes.

- 5 Press UHF or VHF to search stations. The tuning indicators in the window show the approximate location of the current channel. (B = Band indicator)

Each time a station is received, the search stops. Press UHF or VHF again until the desired station is tuned in.

Repeat steps 3 to 5 for all the desired stations.

To cancel an unused programme

- 1 Select the programme to be cancelled with + or - PROGRAM/TRACK/TIMER/INDEX.
- 2 Press RESET.

The cancelled programme will be skipped when + or - PROGRAM/TRACK/TIMER/INDEX is pressed. When the corresponding programme number button on the Commander is pressed, the sound of the cancelled programme will be cut out and no picture will be displayed.

To fine tune a station

If the picture of a particular station is not acceptable, set AFT in the upper compartment to OFF and keep + or - FINE pressed until the picture becomes clear. To view this particular station, set AFT to OFF.

1-4. ABOUT CASSETTES

INSERTION [E-1]

- 1 Press OPEN/CLOSE to open the cassette holder. Power will be supplied automatically with this step.
- 2 Place the cassette with the window side up.
- 3 Press OPEN/CLOSE to close the cassette holder.

EJECTION

- 1 Press OPEN/CLOSE.
- 2 Remove the cassette and press OPEN/CLOSE.

Notes

- Always insert a cassette in the correct direction.
- The cassette holder can be closed by pressing itself manually.
- Never press it forcibly or the cassette may be ejected.
- Once the cassette is placed, you can close the holder by pressing ►, ◀◀, ▶▶ or ● (REC).

TO PREVENT ACCIDENTAL ERASURE [E-2]

When a new recording is made on a previously recorded cassette, the previous recording will be automatically erased. To protect a recording, slide the tab out to cover the opening.

When the tab is out, a recording cannot be made. To re-record on a cassette, slide the tab in.

RECORDING TIME, PLAYBACK TIME

The LP mode is twice as long as the SP mode. For better picture and sound, recording in the SP mode is recommended.

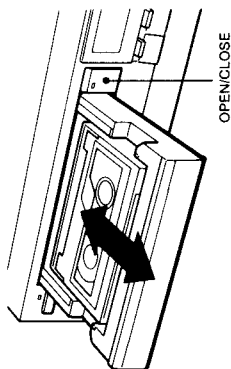
During playback, the mode in which the tape was recorded is selected automatically.

| Cassette used | SP mode | LP mode |
|---------------|---------|---------|
| P5-30 | 30 min. | 1 hr. |
| P5-60 | 60 min. | 2 hr. |
| P5-90 | 90 min. | 3 hr. |

Note

Never insert anything in the small holes on the rear of the cassette.

E-1



E-2



SETTING THE CLOCK [D-3]

- 1 When you connect the unit to a mains outlet, the clock shows "Su 0:00".
- 2 Press CLOCK SET.
- 3 This turns the unit on. Set day, hour and minute in sequence. First adjust the blinking item by pressing the +/- PROGRAM/TRACK/TIMER/INDEX button, and then press NEXT.
- 4 (ex. To set for Wednesday evening at 6:30) For accurate setting, after adjusting the minute digit, press NEXT at the same time as an announced time signal.
- 5 The clock will now start and the dots of the colon will alternately blink every 30 seconds.
- 6 Press ON/STANDBY to turn off the unit.

PROGRAM/TRACK/TIMER/INDEX button

Press + button to advance the digits, and - button to reduce the digits.

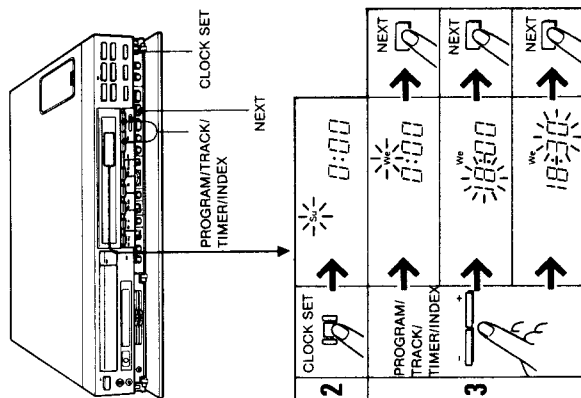
To readjust the previously set item during clock setting

Press CLOCK SET again for a few seconds. Press NEXT until the item to be changed blinks and reset it. Then, terminate the setting by pressing NEXT enough times until the dots of the colon blink.

If a power interruption occurs,

"Su 0:00" will lights up in the window.

D-3



1-5. TV PROGRAMME RECORDING

Make sure that you have finished all the connections and adjustments on pages 28 through 36.

OPERATION [F-1]

Before recording

- Turn on the TV and select the channel for the recorder or select the input for the recorder.*
- Check the position of the selectors:

| Press | to display |
|--------------|------------|
| INPUT SELECT | TUNER |
| REC MODE | SP or LP |

| Set | to |
|--------------------|------|
| PCM MODE | NORM |
| AUTO STEREO | ON |
| AUTO COLOUR SYSTEM | ON |

- Set REC LEVEL to "5".

- 1 Insert a cassette.
- 2 Press ANT TV/VTR so that the "VTR" indicator is displayed.
- 3 Select the programme to be recorded with +/- PROGRAM/TRACK/TIMER/INDEX.
- 4 Slide ● REC to the right.

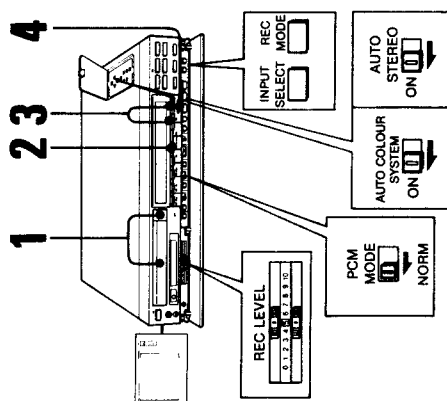
To stop recording
Press ■ STOP.

To stop recording for a moment

Press II/III/IV/PAUSE/STILL. The TV programme can still be seen on the TV, but the picture is not recorded. To resume recording, press II/III/IV/PAUSE/STILL again. To protect the video heads and the tape, the pause mode will be automatically released after about 7 minutes and recording will stop. Smooth recordings can be made by using II/III/IV/PAUSE/STILL.

When the recording is made to the end of the tape, the tape will be automatically rewound to the beginning and the unit will enter the stop mode. The power remains on.

- If your TV/monitor is equipped with audio/video inputs or a multiconnector, select the correct input on your TV/monitor.
- If your TV/monitor is equipped with SCART (CENELEC) or PERI-TV connector, the input signal is selected automatically when you display "VTR" with the recorder.



During recording...

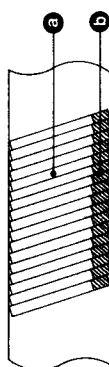
If stereo programmes are received, "STEREO" indicator will be displayed in the window.

If bilingual programmes are received, select the sound to be monitored with AUDIO MONITOR MAIN/SUB/M.S.

Recording is made as follows: [F-2]

- Standard track**
Video/audio signals of the TV programme and the main sound of a bilingual programme are recorded here.
- PCM track**
Audio signals from the connected equipment or from TV are recorded in digital PCM sound. Sound can either be in monaural (when sounds for left and right channel are the same) or in stereo (each sound for left and right channels).

[F-2]



FOR SMOOTH RECORDING

Recording should always be started from the recording pause mode for smooth transitions between scenes. Proceed as follows if the recording was stopped or if you want to record on a pre-recorded tape from a desired point.

To start recording from a particular point

You can decide the starting point for recording while watching the picture.

- 1 Play back the tape and locate the point for recording while watching the picture.
- 2 Press II/III/IV/PAUSE/STILL to stop the tape where you wish to start recording.
- 3 Slide ● REC to the right. The recorder will enter the recording pause mode.
- 4 Press II/III/IV/PAUSE/STILL at the desired point to release the pause mode. Recording starts.

Note

Be sure not to change the position of REC MODE (SP/LP) between different scenes. Particularly, if you change the switch from LP to SP, a short blank will be recorded.

Frame-by-frame recording

If ● REC is slid to the right while the unit is in the recording pause mode, a short recording of approx. 8 frames will be made, and then the unit enters the recording pause mode again. Repeat this operation as many times as you like.

1-6. PLAYBACK

G-1

Before playing back

- Turn on the TV and select the channel for the recorder.
- Check the position of the selectors:

| Set | to |
|---------------|------|
| PCM MODE | NORM |
| AUDIO MONITOR | MAIN |
| MAIN/SUB/M.S | PCM |
| PCM/MIX/STD | PCM |

— Set as above, you can listen to the MAIN language of the bilingual programme and the stereo sound recorded on the PCM track of the tape.
 — While nothing is recorded on the PCM track, you will automatically hear the sound recorded on the STD track.

To monitor other kinds of sound, change these settings. See "To select the monitor sound" below.

Note

If the picture is not displayed and/or the sound is not heard or heard only intermittently when a tape which has been recorded on a video camera recorder or a video cassette recorder without the PCM function is played back on this unit, set AUDIO MONITOR on this unit to STD. (Although AUDIO MONITOR is set to STD, the "PCM" indicator may occasionally light up.)

OPERATION

- 1 Insert a cassette.
- 2 Press ► PLAY.

To stop playing back
 Press ■ STOP.

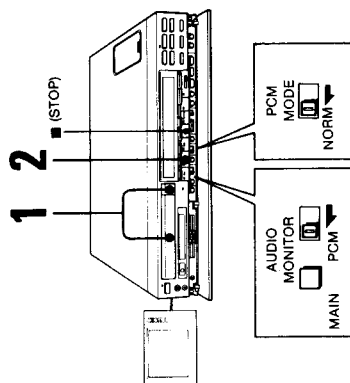
To select the monitor sound

| Kind of the tape (conditions of recorded signals) | Track to be played back | Position of the selector MAIN/ SUB/M.S | PCM/MIX/ STD |
|---------------------------------------------------------|-------------------------------|----------------------------------------------|-----------------|
| Stereo | PCM | — | PCM |
| FM simulcast | PCM | — | PCM |
| Bilingual | PCM | MAIN, SUB or M.S | PCM |
| Audio dubbed (page 24) | PCM and STD | — | MIX |

"—" means that the selector can be set to any of its position.

- If your TV/monitor is equipped with audio/video inputs or a multi-connector, select the correct input on your TV/monitor.
- If your TV/monitor is equipped with SCART (CENELEC) or PERI-TV connector, the input signal is selected automatically when you display "VTR" with the recorder.

G-1



TO VIEW ONE TV PROGRAMME WHILE RECORDING ANOTHER

- 1 Press TV/VTR so that the "VTR" indicator disappears from the window.
- 2 Select the programme you want to view on the TV.

If your TV is equipped with a TV/VTR input selector, simply set the selector to "TV" and select the programme on the TV.

TO RECORD A TV PROGRAMME WHILE RECORDING AN FM BROADCAST AT THE SAME TIME — FM simulcast recording [F-3]

Sometimes a TV station and an FM radio station will broadcast a programme simultaneously so that you can record a TV programme in high-fidelity stereo. The TV programme (video and monaural audio) is recorded normally on the standard track and the stereo audio portion is recorded on the PCM track from your FM tuner.

Operation

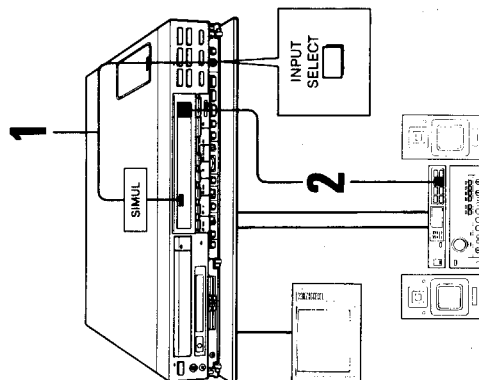
Operate as described in "TV programme recording" on page 40 except the following points:

- 1 Press INPUT SELECT so that the "SIMUL" indication appears in the window.
- 2 Select the programme both on the VTR and the FM tuner.

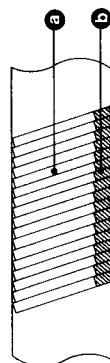
Recording will be made as follows: [F-4]

- Standard track
Video and audio signals of the TV programme will be recorded here.
- PCM track
FM broadcast programme from the FM tuner will be recorded in stereo.

F-3



F-4



To advance or rewind the tape rapidly
Press ►► FF or ◄◄ REW respectively in the stop mode.
To stop the tape, press ■ STOP.

Auto play — To play back a tape from the beginning of the tape after rewinding
Press ► PLAY keeping ◄◄ REW depressed.
After the tape is completely rewound, it will automatically be played back.

VARIOUS PLAYBACK MODES

Use the buttons on the recorder or on the Remote Commander.

Picture search — viewing the picture at a fast speed to find a particular scene
Keep pressing ►► FF or ◄◄ REW during playback. When you release the button, the normal playback will be resumed.

Streaks appear and the sound is muted during "Picture search" and "Still picture". [G.2]

Still picture (playback pause)
Press II/► PAUSE/STILL during playback. The sound is muted.
To resume normal playback, press II/► PAUSE/STILL again or press ► PLAY.

To protect the video heads and the tape, the pause mode will be automatically released after about 7 minutes and playback will be resumed.

To obtain better playback picture in variable playback modes

- If the still picture seems to shake, press + or - STILL ADJ in the upper compartment until the picture stabilizes.
- If streaks or noise bands appear in still, or normal picture or double (x2) speed picture, press + or - STILL ADJ.



G.2

USE OF THE TAPE COUNTER

The tape counter indicates the relative position of programmes on the tape.

G.3

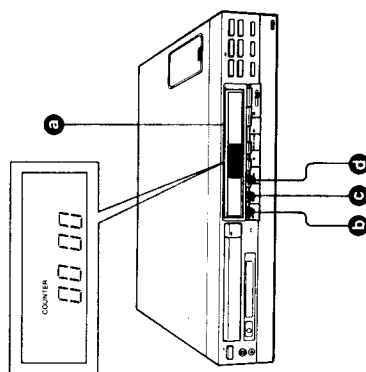
- Display window
- COUNTER/REMAIN
- COUNTER RESET
- GO TO ZERO

To index the tape contents

Before starting recording or playback, press COUNTER RESET to set the counter to 0000. By noting the counter reading at the desired point, you can easily find that point later by referring to the counter.
Note to list the programmes and their counter readings.

G.3

- The counter reading is automatically reset to zero when a cassette is newly inserted.
- The counter reading will be retained in the memory even after the power is turned off, as long as the cassette is kept inserted in the cassette holder.
- The counter reading will not exactly correspond to the position of the tape after the tape has been stopped or run repeatedly in fast-forward or rewind modes.



1-7. DIGITAL MULTI AUDIO RECORDING AND PLAYBACK

Normally, both the video and audio signals can be recorded on your video tape.

[H-1]

- Video + audio
- Audio

However, you can record up to 6 tracks of only the audio signals in the digital mode, using the full width of the tape. This is called digital multi audio recording, providing a high-fidelity stereo sound. [H-2]

To connect the VTR to your audio system, see page 30.

RECORDING [H-3]

Before recording

Check the position of the selectors:

| | |
|----------|----------|
| Set | to |
| REC MODE | SP or LP |
| PCM MODE | P or S* |

* Set to either of two positions. They activate in the same way.

Operation

- 1 Insert a cassette.
- 2 Press the desired DIGITAL MULTI AUDIO button or +/- PROGRAM/TRACK/TIMER/INDEX to select the digital multi audio track on which recording should be made. —Adjust "▲" (red indication) to the desired track.
- 3 Turn on the power on the audio equipment and set to the playback mode.
- 4 Adjust REC LEVEL. Verify the adjustment with the peak level meter of the recorder.

Recording level adjustment [H-4]

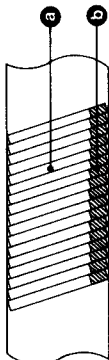
Referring the peak level meter, manually adjust the recording level with REC LEVEL.

Select the best recording level for each source as follows:
When recording sources with many high frequency signals (ex: trampets etc) set so that the peak programme meters deflect -3 dB. ①
When recording sources with medium or lower frequency signals (ex: vocals) set so that the peak programme meters deflect 0 dB. ②

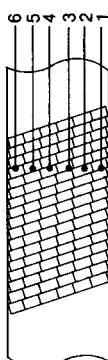
During playback, you can read the recorded level on the peak level meter.

For PCM recording using a PCM digital audio processor which is not based on the 8 mm PCM format Set SHARPNESS to the position between the top center and SHARP, and set REC MODE to SP.

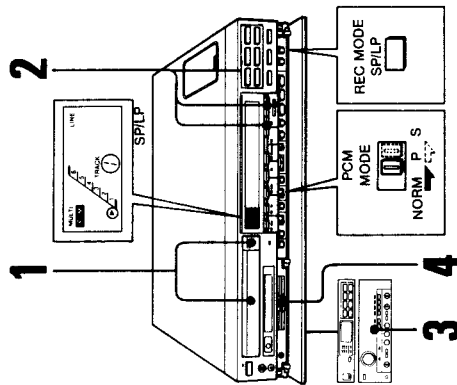
[H-1]



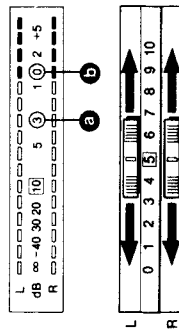
[H-2]



[H-3]



[H-4]



GO TO ZERO — To stop the tape at a particular point [G-4]

- 1 During recording or playback, press COUNTER RESET at the point you want to locate later.
- 2 When recording or playback is finished, stop the tape.
- 3 Press GO TO ZERO. The tape will be rewound or advanced close to the counter 0000 point.

GO TO ZERO play — To start playback automatically from the counter zero point

Press ► PLAY after pressing GO TO ZERO. The indicator on ► PLAY will blink.

To check the remaining recording or playback time [G-5]

During recording or playback, press COUNTER/REMAIN or TAPE REMAIN on the Commander.

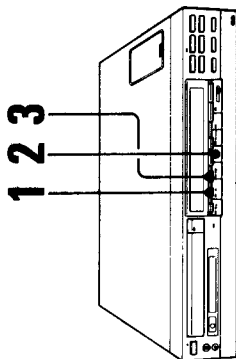
The displayed remaining time will decrease as the recording or playback goes on.

To display the tape counter, press COUNTER/REMAIN or TAPE REMAIN on the Commander again.

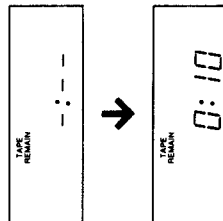
Notes

- The remaining time appears only after the "—" indication has been displayed for several seconds.
- If you want to display the remaining time during x2, first display the remaining time in the normal playback mode. Then, set in the above speed.
- On the accuracy of the remaining time counter:
 - For commercially available recorded tapes, the counter will not indicate the exactly same time as the recorded time labeled on the tape.
 - For damaged tapes and nonstandard tapes, the accuracy will be degraded.
 - At the beginning of a tape, especially when the tape has just been rewound, the remaining time will be calculated greater than the actual time (by several minutes max.).

[G-4]



[G-5]



TIMER RECORDING

If you connect any audio tuner with timer presetting functions, you can record up to 6 radio programmes in the digital PCM sound.

6 programmes can be recorded either on 6 separate audio tracks (for parallel recording) or they can be recorded successively on one track (for series recording).

Before presetting [H-5]

- Turn on the audio tuner.
- Check if the clock is set correctly. (Page 10.)
- Check the position of selectors:

| | |
|-----------|----------------------------|
| Press | to display |
| REC MODE | SP or LP |
| Set | to |
| PCM MODE | P (parallel) or S (series) |
| REC LEVEL | "5" |

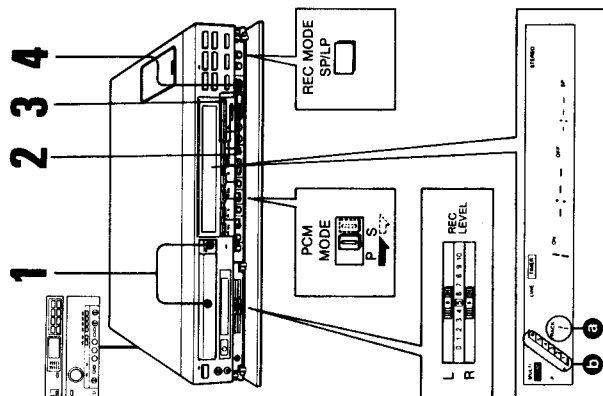
Presetting

- 1 Insert a cassette.
- 2 Press TIMER SET.
- 3 Set the following items by pressing +/- PROGRAM/TRACK/TIMER/INDEX and pressing NEXT.
 - audio track (Set the track number displayed in numeral.)
 - day of the week
 - recording starting time
 - ending time
 (Refer to "Timer-activated recording" on page 19.)
- 4 Press TIMER REC.

Notes

- After having set the timer, do not change the position of PCM MODE because the timer recording will not be made correctly.
- Timer presettings of TV programme recordings and digital multi audio recordings can be made on one tape. However, such presettings are not recommended because you must verify the position of the PCM MODE switch before each timer recordings.
- To preset or check the digital multi audio track while you are using this unit
 - 1) When the unit is in digital multi audio playback/recording
 - a The track for presetting
 - b The track on which playback or recording is being made.
 - 2) When the unit is in normal playback/recording
 - a + b The track for presetting.
 Even if PROGRAM/TRACK/TIMER/INDEX button is pressed while recording or playing back, it does not have effect on the track.

[H-5]



Parallel and series recordings

Parallel recording — stereo recording of one programme on each track

- After a programme is recorded on one track, then, another recording will begin on another track from the beginning of the tape.
- You can select the track in any order for any programme. [H-6]

Series recording — Stereo recording in series on only a single track

- After one programme is recorded, another one is recorded successively on the same track. [H-7]

Notes

On parallel recording

- If a programme is already preset on a track, you cannot preset another programme on the same track.
- For the first timer-recording programme, the tape will not be rewound automatically to the beginning. The recording will start from the current position of the tape.
- If the next programme starts before the tape has been rewound completely, the beginning of the programme will not be recorded.

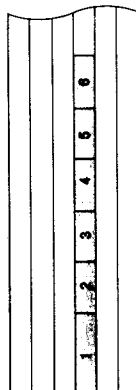
On series recording

- The track on which timer recordings are made, is the track that is selected in the last timer programme setting.
- After all the preset programmes are recorded, the tape will not be rewound to the beginning.

[H-6]



[H-7]



PLAYBACK [H-8]

Before playback

- Turn on the audio system so that sound is heard from speakers.
- Set DIGITAL MULTI PLAY on the rear to:
 AUTO for playing back tapes recorded by this VTR.
 MULTI for playing back tapes recorded by other VTRs
 (when their sound cannot be heard with the switch set to AUTO).

Playback

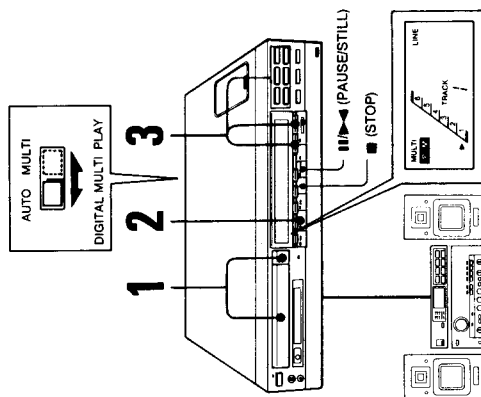
- 1 Insert a cassette.
- 2 Press **▶** PLAY.
- 3 Press the desired DIGITAL MULTI AUDIO button or +/- PROGRAM/TRACK/TIMER/INDEX to select the track to be monitored. The red "▶" indicates the selected track. Only the track marked with red bar on the right side has certain recorded signals. Recordings are not made on the tracks without this indication.

To stop playing back
 Press **■** STOP.

To stop the tape for a moment
 Press **|||▶** PAUSE/STILL.

Notes

- When DIGITAL MULTI PLAY is set to MULTI, all bars light up even if nothing has been recorded on the tracks.
- While playback, we recommend that you set REC LEVEL to the "0" position. If not noise which appears when you stop the tape, may damage the speakers.



1-8. INDEX FUNCTION

The desired programme can be easily located by the index signal marked on the tape.
 This function is effective either to normal video-audio recorded tapes and to digital multi audio recorded tapes.

TO MARK INDEX SIGNALS

Index signals can be marked at any desired point on the tape during recording, timer recording or normal playback.

[I-1]

Press INDEX MARK at the point where an index signal is to be marked.

The "INDEX" indication blinks while the index signal is being marked.

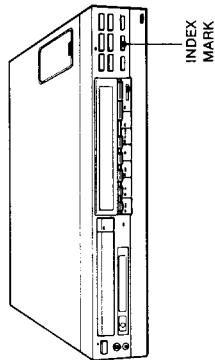
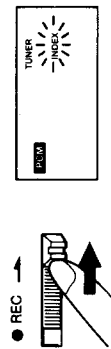
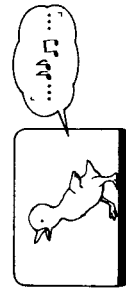
An index signal is automatically marked on the tape when:

- REC is slid to the right or when a timer recording starts. [I-2]

The "INDEX" indication blinks in the window while the index signal is being marked.

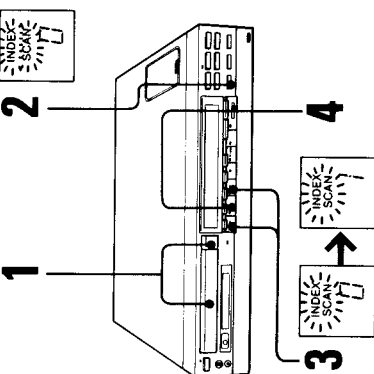
Notes

- Index signals will not be marked on the tape when the recording is started by releasing the recording pause mode.
- The index function operates also with the index signals marked using the index function (same format) of other recorders.
- The sound will decrease and be kept at this volume while the index signal is being marked in the playback mode. In addition, a black bar noise will appear at the bottom of the playback picture during marking. [I-3]
- However, the recorded signals are not affected.
- During playback, index signals can be marked on cassette tapes whose safety tab is slid out (including commercially available prerecorded video tapes).
- An index signal may not be registered immediately before a point on the tape where the recording tape speed changes.
- You cannot mark nor erase index signals if no video/audio signals is recorded on the PCM track of the tape.
- Between each index signal, there must be a minimum space of 2 minutes for LP mode and 1 minute for SP mode.
- If index signals are marked at shorter intervals, index scan or search functions may not be operated correctly.
- Index marking and erasing cannot be made during tape editing. (When the EDIT lamp is lit.)

[I-1]**[I-2]****[I-3]**

I-4

INDEX SCAN — To play back the beginning of each programme in sequence I-4



- 1 Insert a cassette that has index signals recorded.
- 2 Press INDEX once.
- 3 The "INDEX" and "SCAN" indicators blink alternately. To scan the previous programmes, press ◀ REW. The tape will be rewound or rapidly advanced to the next index signal marked. While scanning, the "INDEX" and "SCAN" indicators blink, simultaneously. The tape will be played back for approximately 10 seconds, and then, rewind or advanced to the next index signal. Everytime an index signal is detected and playback begins, the displayed index number increases.
- 4 At the desired programme, press ▶ PLAY. Normal playback of that programme will begin.

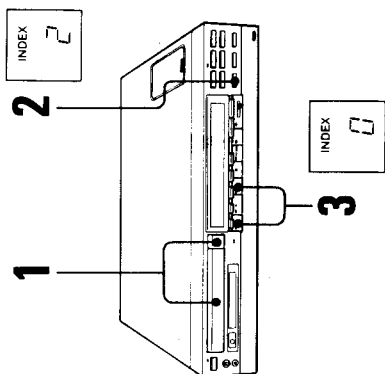
I-5

INDEX SEARCH I-5 — To locate the desired programme

You can locate the desired programme and play it back automatically by designating the number of its index signal. Up to 99th index signal from the present position on the tape can be located.

Before operating

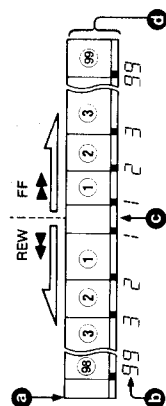
Set PCM MODE to NORM or P (or S). If you have set to P (or S), select the digital multi audio track.



- 1 Insert a cassette that has index signals marked.
- 2 Press INDEX several times until the index number of the desired programme is displayed. For instance, to locate the second programme ahead, two index signals should be detected, so press INDEX until "2" is displayed. On the other hand, to locate the second programme behind, three signals should be detected, so press the button until "3" is displayed.

- I-6
- ① Beginning of the programme
 - ② Index number
 - ③ Present position
 - ④ Video tape (or one of the 6 digital multi audio tracks)

I-6



Notes

- To designate higher index number, first press INDEX several times, then continue with +/- PROGRAM/ TRACK/TIMER/INDEX so that the desired index number display appears.
- If you enter an incorrect index number, press ■ STOP to reset the display.
- To locate a previous programme on the tape, press ◀ REW. To locate a programme ahead, press ▶▶ FF.

The tape will be rewound or rapidly advanced. Every time an index signal is detected, the displayed number will decrease. When the number reaches 0, playback of your desired programme will begin.

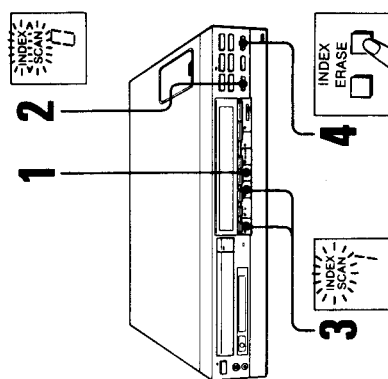
Notes

- If, on a tape, there are portions on which index signals are marked on the first PCM audio track in the digital multi audio mode, and portions on which index signals are marked in the normal mode, the index scan and search in the normal mode cannot be made correctly.
- For index scan or search in digital multi audio mode, set AUDIO MONITOR to PCM or MIX.
- Index scan and search can be activated during playback mode. (In the mode which was being selected when the playback started.)
- While the index signals are being scanned or located, nothing is displayed on the monitor and sound is cut off.
- If the tape is rewound to the beginning during index scan or index search, playback will begin automatically.
- If the tape reaches the end during index scan or index search, the tape will not be rewound automatically.

When the desired programme cannot be played back with the index function, check the following:

- The nearest index signal may not have been counted. If the point where you pressed ◀◀ REW or ▶▶ FF is fairly close within 2 minutes of the normal tape-run to the nearest index signal, that signal will not be counted.
- Is there a space of more than 2 minutes between two index signals?
- If there is more than one index signal marked within an interval of 2 minutes of the normal tape-run, the mechanism may not function properly.

I-7



TO ERASE INDEX SIGNALS I-7

Before operating

Set PCM MODE to NORM or P (or S).
If you have set to P (or S), select the digital multi audio track.

Erasing while index scanning — To erase the index signals in sequence

- 1 Stop the tape with ■ STOP.
- 2 Press INDEX once.
- 3 Press ◀◀ REW or ▶▶ FF.
The tape will be rewound or rapidly advanced to the next index signal and playback will begin.
- 4 Within approx. 10 seconds, while the tape is being played back, press INDEX ERASE.
The "INDEX" indication blinks and the "SCAN" indication lights steadily while the index signal's erasure.

After the erasure, index scan will resume. At each index signal located, press INDEX ERASE.
To stop index scanning, press ■ STOP.

Notes

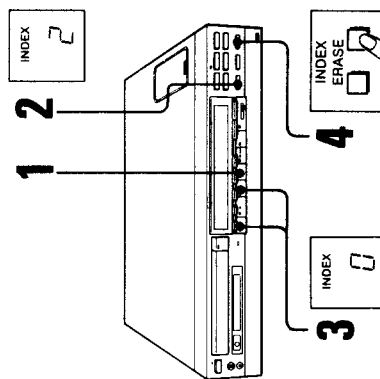
- Press INDEX ERASE more than 2 seconds after the playback starts.
- The index signals recorded immediately after an unrecorded portion on a tape, or on a portion where the recording tape speed has been changed or two recordings have been made continuously will not be erased.
- During index erasing, a black bar noise will appear at the bottom of the playback picture.

Erasing while index searching — To erase a particular index signal I-8

- 1 Stop the tape with ■ STOP.
- 2 Press INDEX button several times until the number of the index signal to be erased is displayed.
- 3 Press ◀◀ REW or ▶▶ FF.
- 4 Within approx. 10 seconds, while the tape is being played back, press INDEX ERASE.
The "INDEX" indication blinks while the index signal is being erased.

After the erasure, the unit returns to the normal playback.

I-8



1-9. TIMER-ACTIVATED RECORDING

Six recordings can be preset to be made between today and Saturday of the week after next.

| Su | Mo | Tu | We | Th | Fr | Sa | Today |
|----|----|----|----|----|----|----|-------|
| 5 | 6 | 7 | 8 | 9 | 10 | 11 | 1 |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 | 2 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | 3 |
| | | | | | | | 4 |
| | | | | | | | 5 |
| | | | | | | | 6 |
| | | | | | | | 7 |
| | | | | | | | 8 |
| | | | | | | | 9 |
| | | | | | | | 10 |
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| | | | | | | | 27 |
| | | | | | | | 28 |
| | | | | | | | 29 |
| | | | | | | | 30 |
| | | | | | | | 31 |

Before setting the timer

- The clock must be set correctly. For the setting, see page 10.
- Make sure the cassette tape is long enough to record all the programmes.
- Be sure the safety tab of the cassette has not been slid out.
- Set the selectors as in "Before recording" on page 11.

J-1

Buttons for timer setting

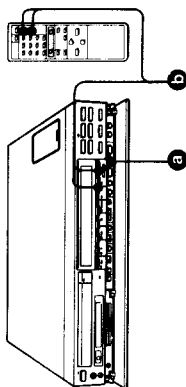
Ⓢ NEXT button

Every time you press the NEXT button, the item to be set will blink.

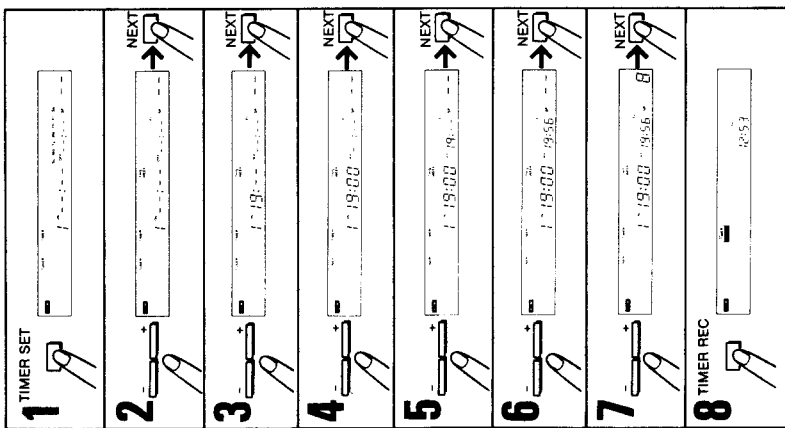
Ⓢ +/- PROGRAM/TRACK/TIMER/INDEX buttons

To set the week and day, the turn-on and turn-off times and the channel, press + button to advance and - button to reverse.

J-1



J-2



Operation J-2

Suppose you want to make a recording of channel 8 from 7:00 PM to 7:56 PM Friday.

- Press **TIMER SET**.
- Set the week and day with +/- **PROGRAM/TRACK/TIMER/INDEX**.

Then, press **NEXT**.

- Set the turn-on hour with +/- **PROGRAM/TRACK/TIMER/INDEX**.

Press **NEXT**.

- Set the minute with +/- **PROGRAM/TRACK/TIMER/INDEX**.

Press **NEXT**.

- Set the turn-off hour with +/- **PROGRAM/TRACK/TIMER/INDEX**.

Press **NEXT**.

- Set the minute with +/- **PROGRAM/TRACK/TIMER/INDEX**.

Press **NEXT**.

- Set the TV programme number to be recorded with +/- **PROGRAM/TRACK/TIMER/INDEX**.

Press **NEXT**.

To preset other programmes, repeat steps 1 to 7.

- Press **TIMER REC**.

The power will be turned off and the recorder will enter the standby mode. (The current time is displayed.)

Recording will start at the preset time and will automatically stop when the recording is completed.

The memory of the timer programme will be erased if it is for only one day and the timer programme numbers will advance one by one.

BEFORE THE TIMER-ACTIVATED RECORDING STARTS

To check the timer settings

Press CHECK.
Every time you press CHECK, each programme will be displayed in the window.

To change the settings

- 1 Press **TIMER REC**. The **TIMER REC** indicator goes off.
- 2 Press **CHECK** to select the programme to be changed.
- 3 Press **TIMER SET**.
- 4 Press **NEXT** until the item to be changed blinks.
- 5 Change the setting with **+/- PROGRAM/TRACK/**
- 6 Press **INDEX**.
- 7 Press **TIMER REC** again to reactivate the timer.

To erase the memory of a particular programme

- 1 Press **TIMER REC**. The **TIMER REC** indicator goes off.
- 2 Press **CHECK** to select the programme to be erased.
- 3 Press **CLEAR**. The memory of the programme will be eliminated.
- 4 If other programmes have been preset for recording, press **TIMER REC** again to reactivate the timer.

DURING RECORDING

To stop the timer recording

Press **TIMER REC.** The recording will stop and the power will be turned off.

When the tape ends during timer recording

The tape stops but the tape will not be rewound.

The **■ STOP** and **||/▶ PAUSE/STILL** buttons do not function during a timer recording.

Notes

- Once the **TIMER REC** indicator has been displayed, only the functions of **CHECK** and **TIMER REC** can be activated. For the usual manual operations, press **TIMER REC** again so that the indicator goes off, and then, turn on the power.
- **Timer recordings of the signals from the AUDIO LINE IN jacks in the digital multi audio mode can also be made.** See page 56.

If you select an incorrect digit for the turn-on/off time

To set the week and day

The week and day indications change in the direction of the arrow, starting from today, when you press + PROGRAM/TIMER/INDEX and in the reverse direction when you press - PROGRAM/TIMER/INDEX.

| | |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The day(s) you want the recording(s) made | Display |
| At the same time every day | <div> <div>Su Mo Tu We Th Fr Sa</div> <div>THIS WEEK</div> <div> <div>We (Today) → Th → → → Sa</div> <div>NEXT WEEK</div> <div>Su → → → Sa</div> <div>WEEK AFTER NEXT</div> <div>Su → → → Sa</div> </div> </div> |
| Only one day | <div> <div>EVERY WEEK</div> <div>Su → → → Fr → Sa</div> </div> |
| At the same time on the same day every week | <div> <div>Mo Tu We Th Fr</div> </div> |
| At the same time every day from Monday to Friday | <div> <div>Mo Tu We Th Fr Sa</div> </div> |
| At the same time every day from Monday to Saturday | <div> <div>Mo Tu We Th Fr Sa</div> </div> |

1-10. ABOUT THE VPS SWITCH

To avoid missing a timer-activated recording because of a delay in the transmission sequence or a change in the programme schedule, the West German broadcasting stations have agreed to transmit a special code, called the VPS (Video Program System) code, together with the TV programme. The VPS switch allows you to preset recording times and insures that your programmes will be recorded regardless of delays.

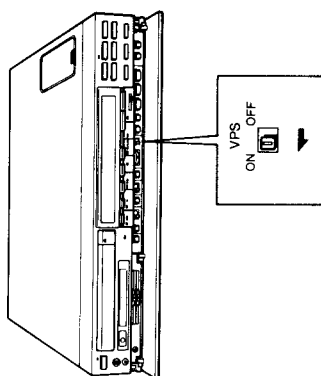
- 1 Set the VPS switch to ON.
The VPS indication appears in the display window.
- 2 Set the timer to the time listed in the VPS programme guide which corresponds to the programme you want to record.

The unit will be turned on 10 minutes before the preset time, but recording will start when the preset programme begins.

Notes

- If the station you want to record fails to transmit the VPS code signal with the programme, or the VPS code cannot be detected for some reason, recording will begin at the time you preset.
- Be sure to set the timer according to the VPS programme guide, otherwise programme will not be recorded.
- Even if the preset programme does not begin, the unit will remain prepared for recording until 4:00 AM of next day. Or the unit will be prepared to record for 23 hours 50 minutes when the preset time is between 0:00 AM to 4:00 AM.
- When the unit receives a VPS programme interruption code during recording (for example, when urgent news is inserted), it will stop recording. As soon as the interrupted programme resumes, recording will continue.

K-1



NOTES ON TIMER-ACTIVATED RECORDINGS

Troubles when TIMER REC is pressed

- The cassette will be ejected automatically →
- The cassette inserted has the safety tab slid out.
 - No cassette is inserted.
- The "TIMER-REC" indicator disappears →
- The tape is at its end
 - The turn-on time has been set before the current time.

When the presets of your timer-activated recordings overlap J-3

The recording of programme 2 will begin before the programme 1 is finished.
In the illust.: (The coloured portion will not be recorded.)

If the turn-on time of two programmes are the same J-4

The recording of the programme having the higher programme number will be made. The memory of the programme having the lower number will be cleared.
In the illust.: (The coloured portion will not be recorded.)

If the turn-off time of one programme is the same as the turn-off time of another programme

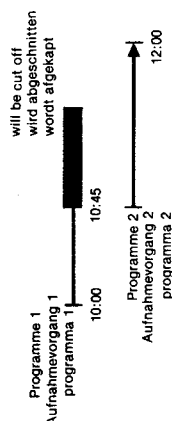
When a timer recording starts, the unit is set to recording pause mode 6 seconds before the preset turn-on time. The pause mode is released exactly at the preset turn-on time and recording starts approximately 1 second later. Therefore, the end of the first programme will not be recorded for 6 seconds. Both recordings, however, will not be made smoothly.

If a power interruption occurs before a timer recording
The clock will stop and "Su 0:00" will light up. This means that the memory of the timer programmes has been completely erased. Reset the clock and timer programmes.

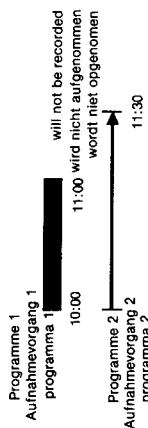
A short power interruption of less than approximately 4 seconds will not affect the memory. The clock will show the correct time and the timer programmes will be performed.

If the power was interrupted during a timer recording
Recording will stop and the power will be turned off. If the interruption was less than approximately 4 seconds, the recording will resume.

J-3



J-4



1-12. TAPE EDITING

Various methods for easy and highly accurate tape editing are available with this VTR. Select the best method according to your purpose and to the video/audio equipment you own. See the below chart.

M-1

| | |
|---|------------------|
| a | VMC-2121CE |
| | VMC-2106S |
| | VMC-2104MS |
| | VMC-604S/-605S |
| | VMC-602MS/-603MS |
| b | RK-69A/34A |
| c | RK-74H |

| Editing method | Connection diagram | Page |
|-----------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| Editing a home movie tape from this unit to another VTR | M-2 | 23 |
| Editing a home movie tape from another VTR to this unit | M-3 M-4 | 23 23 |
| • Basic editing • Editing from a VTR having a CONTROL S OUT jack • Editing with the RM-E100V editing controller | M-5 | 23 |
| Audio dubbing | M-6 | 24 |

In the connection diagrams, a – b indicate the followings:
a Audio and video connection
b Control S connection
c Audio connection

Function of the EDIT button

To reduce signal loss that results from the tape-to-tape transfer when tape editing is performed with another VTR, press EDIT. The EDIT lamp lights up.
For normal playback, press the EDIT button to keep the lamp off.
During audio dubbing, this button does not activate.

Caution

Television programmes, films, video tapes and other materials may be copyrighted.
Unauthorized duplication of such material may be contrary to the provisions of the copyright laws.

Multi-programme and multi-channel recording

The VPS function allows you to record several successive programmes.

Occasionally, these programmes may overlap or conflict with one another. In these cases the following rules apply.

- If you are recording two successive programmes, on the same channel and the first is delayed past the starting time of the second, the first setting is cancelled and the second programme is recorded.
- If you are recording two successive programmes, each on a different channel, and the first is delayed past the starting time of the second, the first will be cancelled, and the VPS function will not be activated for the second programme and the second programme will be recorded beginning at the preset time even if the second programme is delayed.
- If the first programme is delayed so that it is not finished before the second is scheduled to begin, the unit will automatically switch to the second programme at the preset time and the second programme will be recorded.

1-11. USE OF THE SLEEP TIMER

To preset the turn-off time of the unit

L-1

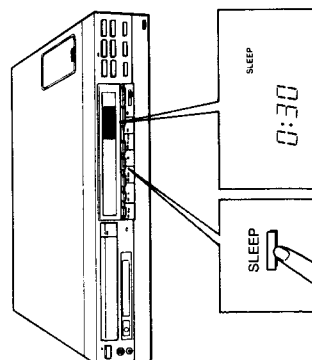
When recording or playback is being made, preset the turn-off time of the unit.
The recording or playback duration can be set for up to 5 hours by 30 minutes.

Press SLEEP.

Every time you press on SLEEP, the recording/playback duration indication changes as follows:

| | | | | | | | | |
|---------|---|---------|---|------------|---|-----------|---|----------------------|
| 0:30 | → | 1:00 | → | 2:00 | → | 5:00 | → | Current time display |
| 30 min. | | One hr. | | Two hrs. | | Five hrs. | | Zero hr. |
| | | | | a half hr. | | | | |

The duration decreases minute by minute as the recording or playback advances. The power will be turned off automatically about 30 seconds after the duration time has elapsed.



L-1

EDITING A HOME MOVIE TAPE FROM THIS UNIT TO ANOTHER VTR

Connection

[M-2]

Preparation

On this unit = player

- Set AUDIO MONITOR to the appropriate position.

| Sound to be recorded | PCM/MIX/STD Set to | MAIN/SUB/M/S Press to display |
|-------------------------------------------------|-----------------------|----------------------------------|
| Sound of PCM track | PCM | * |
| Sound of PCM and STD tracks | MIX | * |
| Sound of STD track | STD | * |
| MAIN, SUB or MAIN + SUB sound of bilingual tape | PCM | MAIN, SUB or MAIN/SUB |

"*" means that the selector can be set to any of its position.

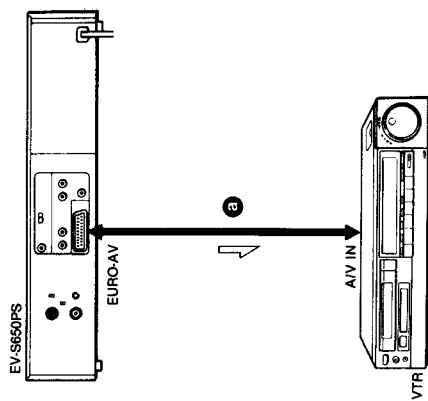
- Press EDIT so that the EDIT lamp lights up.

On another VTR = recorder

Set the input select switch to LINE.

If another VTR provides the EDIT mode button, set it in edit mode.

[M-2]



EDITING A HOME MOVIE TAPE FROM ANOTHER VTR TO THIS UNIT

We recommend using this unit for editing and another VTR for playback because the flying erase head of this unit allows you continuous recordings without disturbance.

Basic editing

Connection

[M-3]

Preparation

On another VTR = player

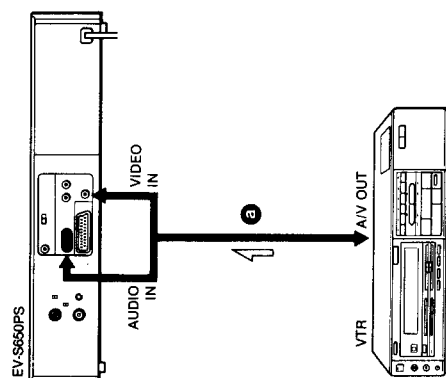
Select the sound to be recorded.

If another VTR provides the EDIT mode button, set it in edit mode.

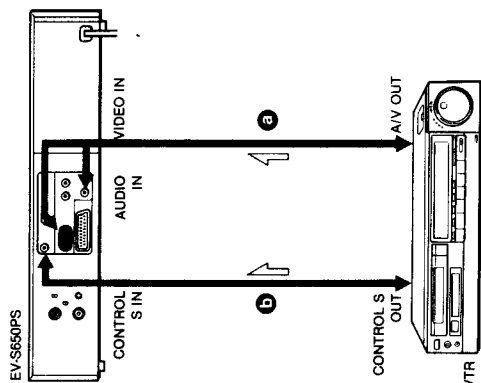
On this unit = recorder

Select the LINE input with INPUT SELECT. Adjust the recording level with REC LEVEL.

[M-3]



[M-4]



Editing from a VTR having a CONTROL S OUT jack
If another Sony VTR with Intercomponent control terminals are used with this unit, use of the supplied Remote Commander brings you much more convenience in editing operations.

Connection

Connect the CONTROL S IN jack of this unit to the CONTROL S OUT jack of another VTR. [M-4]

Preparation

Select the LINE Input with INPUT SELECT.

Operation

"Assemble editing" can be made.

The scenes to be assembled are designated on the original tape on the connected VTR. They can be "assembled" (recorded) onto the tape of this unit.

Editing with the RM-E100V editing controller

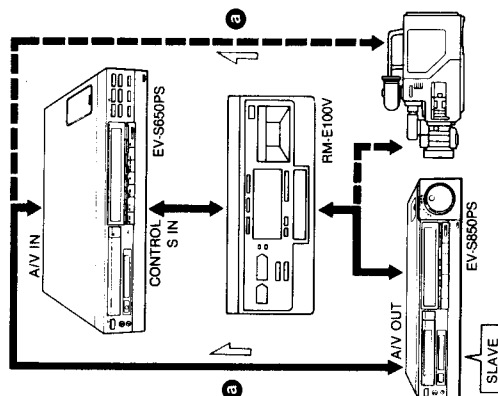
Connect the RM-E100V editing controller between the VTR or video camera recorder and this unit. With this controller, you will be able to preset the locations of the scenes you want to record (up to 8) in the controller and with a press of a button, these scenes will be recorded by this unit automatically in the order preset.

If an edit mode button is provided on another VTR, set it in edit mode. [M-5]

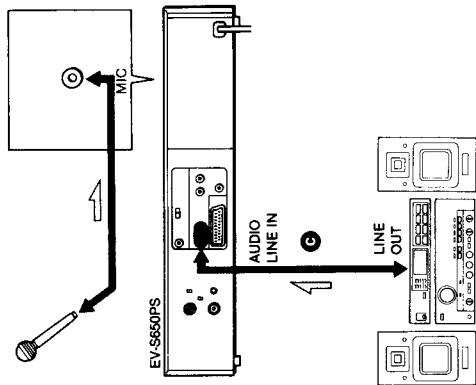
Note

[M-5] indicates the example of the connection with Sony EV-S850PS stereo video cassette recorder. Set MASTER/SLAVE to SLAVE.

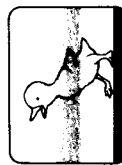
[M-5]



M-6



M-7



AUDIO DUBBING

Connection [M-6]

To dub signals from the audio system
Connect AUDIO LINE IN of this unit to the LINE OUT jacks of the audio system.

To dub signals from the microphone
Connect microphone to MIC.

To dub signals of TV programmes
You can record audio signals from the built-in tuner.

Audio signals are dubbed as follows:

| INPUT SELECT | Input | PCM track | |
|--------------|--------------------------------|------------------|------------------|
| LINE | Microphone | L channel | R channel |
| | LINE IN (AUDIO) | Microphone sound | Microphone sound |
| | Microphone and LINE IN (AUDIO) | L channel sound | R channel sound |
| TUNER | — | Microphone sound | TV sound |

Operation

- 1 Set PCM MODE to NORM.
- 2 Press INPUT SELECT and display:
LINE to dub audio signals from the audio system or microphone.
- 3 Press **TUNER** to dub signals of TV programmes.
- 4 Decide the starting point of audio dubbing, and press **II** **▶◀**.
- 5 Press AUDIO DUB.
- 6 Press **II** **▶◀** to release the pause mode, and at the same time start the audio source—such as talking into the microphone, playing back a tape recorder, etc.

Notes

- During dubbing, the black band appears in the center and lower positions of the screen. [M-7]
- But the recorded picture will not be affected.
- When the tape which is recorded in the different recording times is used for dubbing, noise will be heard at the point where the recording time is changed.
- Index signals will be erased after completing audio dubbing.

1-13. TROUBLE SHOOTING

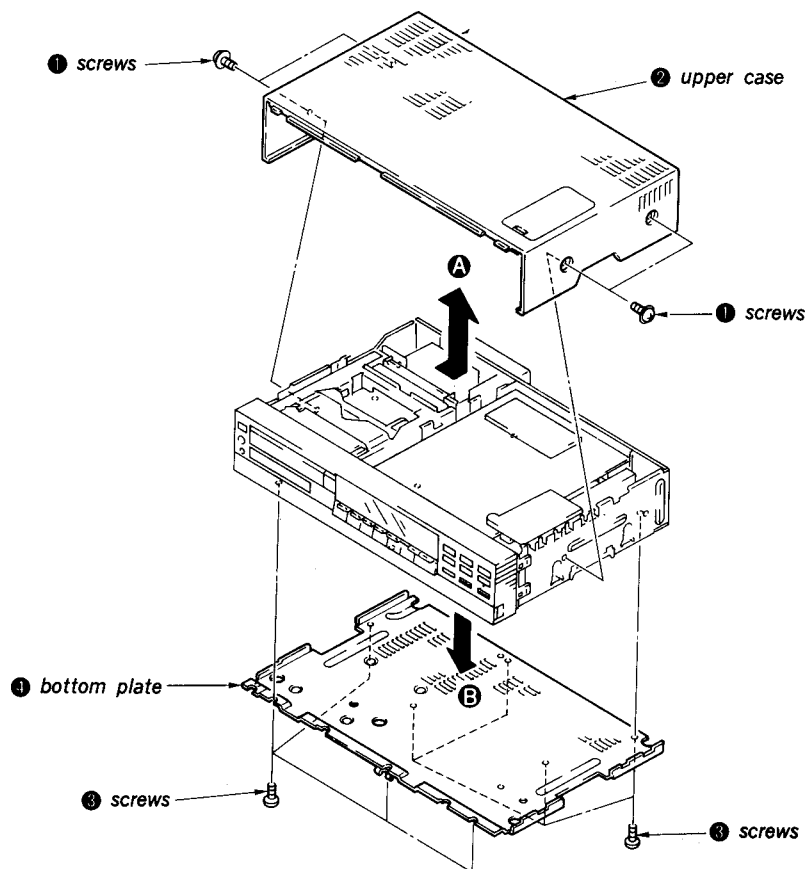
If any difficulty should arise during operation, first check the power cord (mains lead) connection, then go through the following list. Should the difficulty persist, unplug the unit and contact your Sony dealer or local authorized Sony service facility.

| | Symptom | Possible causes and corrections |
|-----------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| POWER | ON/STANDBY switch does not function. | <ul style="list-style-type: none"> • The mains lead is disconnected. • The recorder is in the timer standby mode. Press TIMER REC. |
| CLOCK | The clock has stopped at "Su 0:00". | There has been a power interruption. Reset the clock time and timer settings. |
| | TV programme is not clearly displayed on the TV screen or no picture is displayed on the screen. | <ul style="list-style-type: none"> • "VTR" is not displayed. Press TV/VTR. • The programme for the video recorder on the TV tuner is not correctly tuned or the video input is not selected on the TV tuner. • AUTO COLOUR SYSTEM not set correctly. |
| | Recording cannot be done correctly. | <ul style="list-style-type: none"> • The input is not selected correctly. • The tab on the cassette is out (red). |
| | When REC is slid to the right, the cassette holder opens. | The tape is at its end. |
| | Playback picture is not clearly displayed on the TV screen. | <ul style="list-style-type: none"> • The programme for video recorder on the TV tuner is not correctly tuned or the video input is not selected on the TV tuner. • The video heads may be contaminated. Clean the heads using the Sony V8-25CL video head cleaning cassette. For details on cleaning, refer to the instructions furnished with the cleaning cassette. • If the V8-25CL cleaning cassette is not available in your area, have the heads cleaned at the nearest Sony service facility. • Adjust SHARPNESS. |
| | Picture being recorded cannot be monitored on the TV screen. | Press TV/VTR so that "VTR" is displayed in the window. |
| | The picture rolls vertically. | Adjust the vertical control on the TV receiver. |
| | Noise band in the still picture. | Adjust STILL ADJ to move it. |
| | Distorted or noisy sound. | Recording level was not correctly adjusted. |
| | Audio recording cannot be done. | When recording, adjust the recording level controls properly. |
| | Timer setting cannot be made. | The clock is not set. |
| | Timer recording cannot be made properly. | <ul style="list-style-type: none"> • The clock is not set correctly. • No cassette is inserted. • The tape is at its end. • The tab on the cassette is out. • The turn-on/turn-off day and time have not been set correctly. • There has been a power interruption. • TIMER REC has not been pressed. |
| TIMER RECORDING | The VTR cannot be remotely controlled. | <ul style="list-style-type: none"> • The remote control ANT TV/VTR selector on the Commander is set to TV. • The batteries are exhausted. |
| OTHERS | Cassette cannot be ejected. | <ul style="list-style-type: none"> • Recording is being done. • When inserting, you inserted it forcibly. Turn the power off and turn on again, then press OPEN/CLOSE. |

SECTION 2 DISASSEMBLY

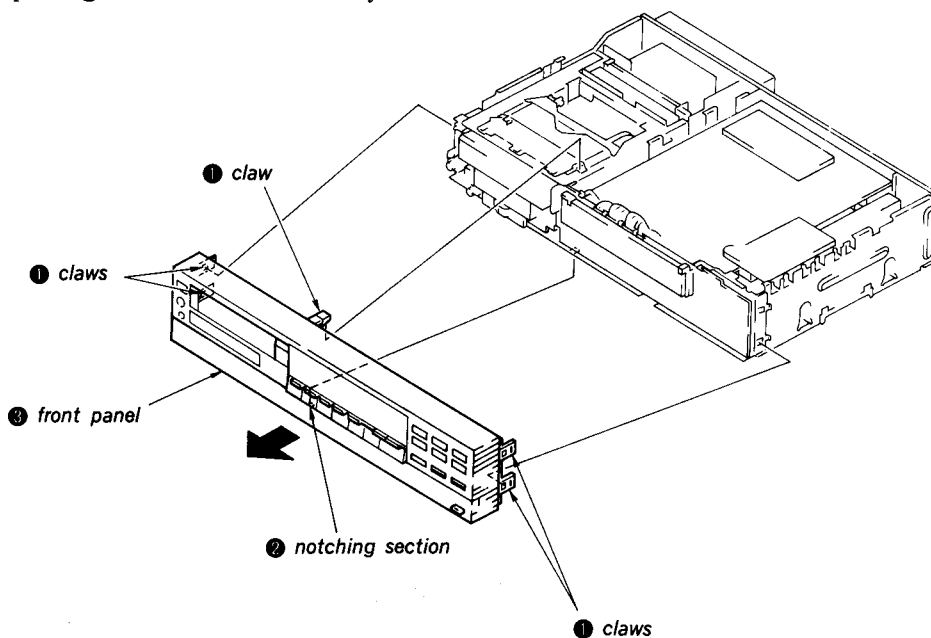
2-1. REMOVAL OF CABINET CASE

- 1) Remove the four screws ❶.
- 2) Remove the upper case ❷ in the direction shown by the arrow ❸.
- 3) Remove the eight screws ❹.
- 4) Remove the bottom plate ❺ in the direction shown by the arrow ❻.



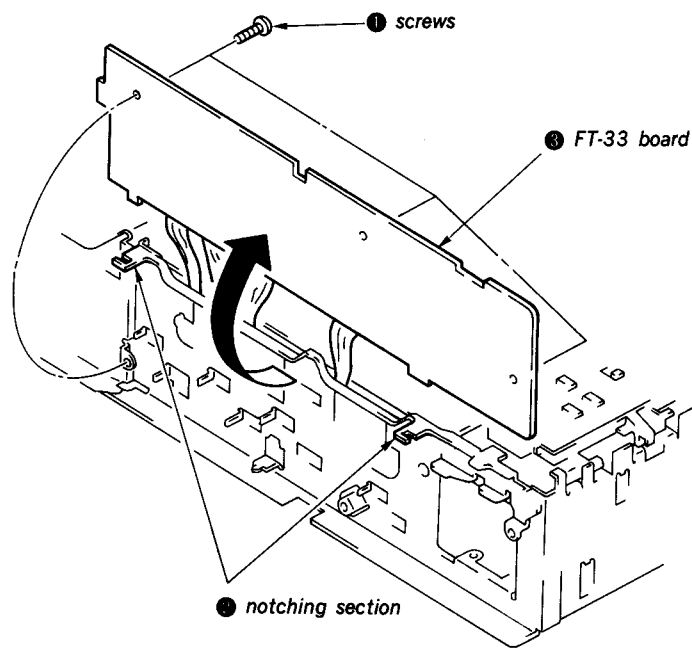
2-2. REMOVAL OF FRONT PANEL

- 1) Remove the five claws ❶ and the notching section ❷.
- 2) Remove the front panel ❸ in the direction shown by the arrow.



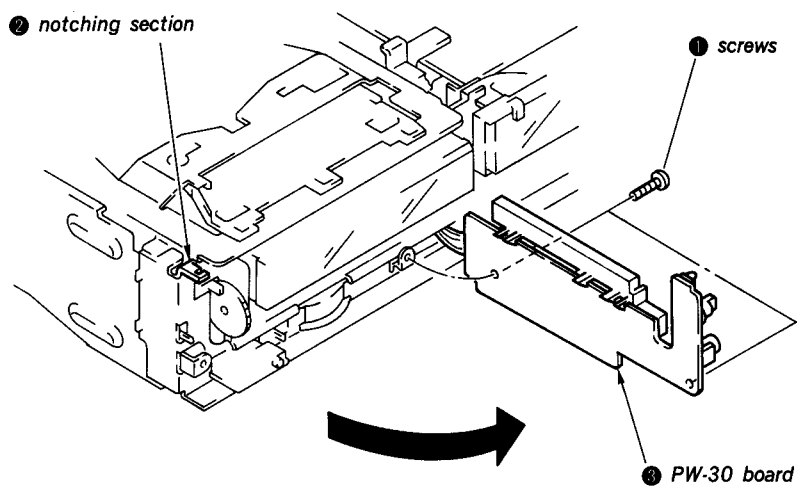
2-3. OPENING OF FT-33 BOARD

- 1) Remove the three screws ❶.
- 2) Remove the FT-33 board ❸ from the two notching section ❷.
- 3) Open the FT-33 board in the direction shown by the arrow.



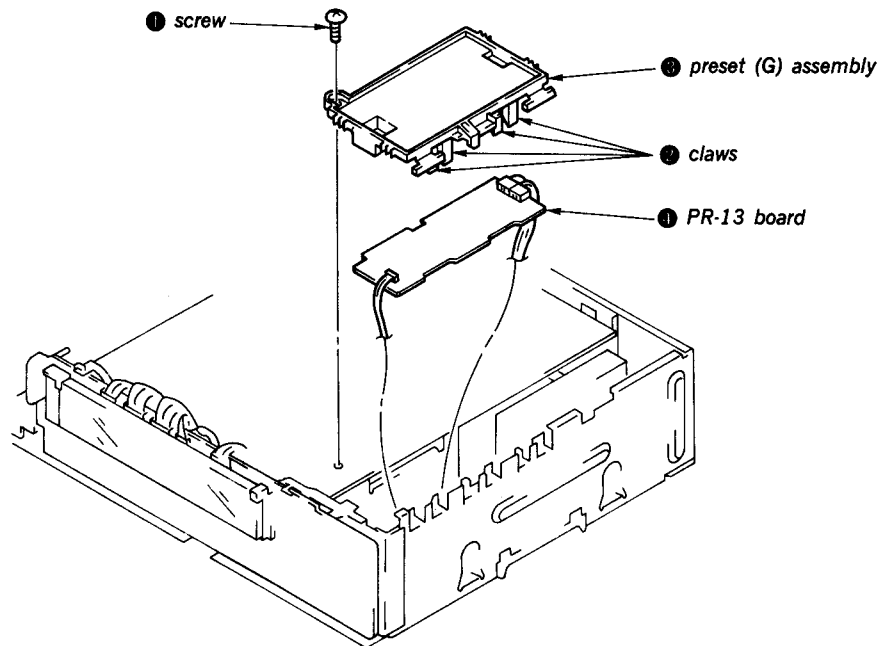
2-4. OPENING OF PW-30 BOARD

- 1) Remove the two screws ❶.
- 2) Remove the PW-30 board ❸ from the notching section ❷.
- 3) Open the PW-30 board ❸ in the direction shown by the arrow.



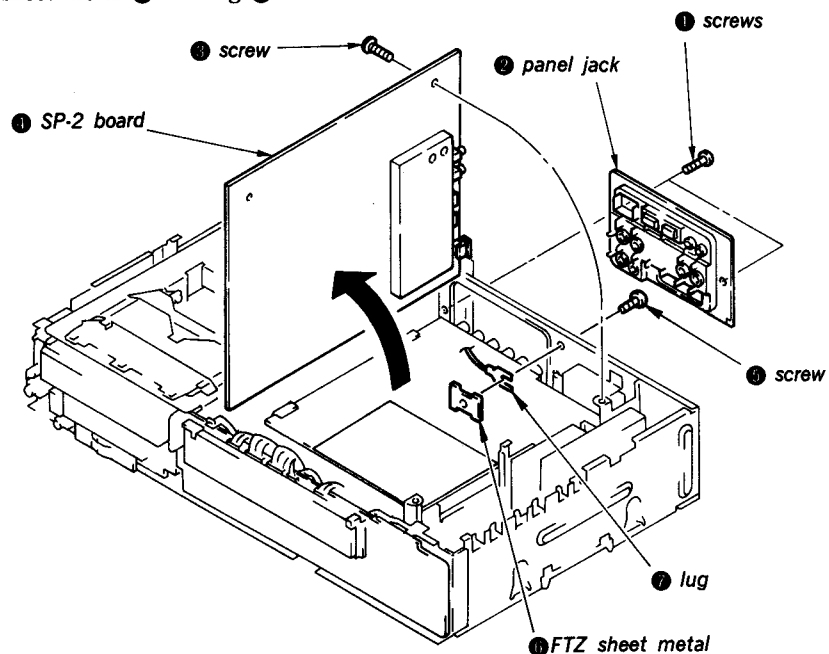
2-5. REMOVAL OF PR-13 BOARD

- 1) Remove the screw ①.
- 2) Take off the four claws ②.
- 3) Remove the preset (G) assembly ③.
- 4) Remove the PR-13 board ④.



2-6. OPENING OF SP-2 BOARD

- 1) Refer to the "REMOVAL OF PR-13 BOARD", and remove the preset (G) assembly.
- 2) Remove the two screws ①.
- 3) Remove the panel jack ②.
- 4) Remove the screw ③, and remove the SP-2 board ④ in the direction shown by the arrow.
- 5) Remove the screw ⑤, FTZ sheet metal ⑥ and lug ⑦.



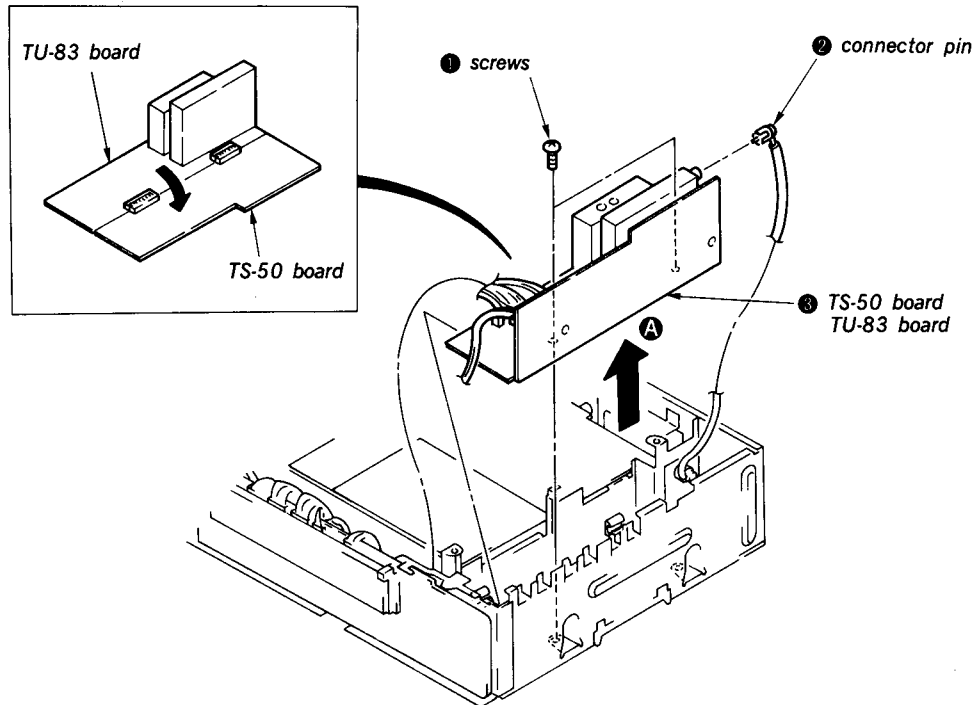
2-7. REMOVAL OF TS-50, TU-83 BOARD

- 1) Refer to "REMOVAL OF SP-2 BOARD", and open the SP-2 board.
- 2) Remove the two screws ❶.
- 3) Pull out the connector pin ❷.

- 4) Remove TS-50, and TU-83 board ❸ in the direction shown by the arrow A.

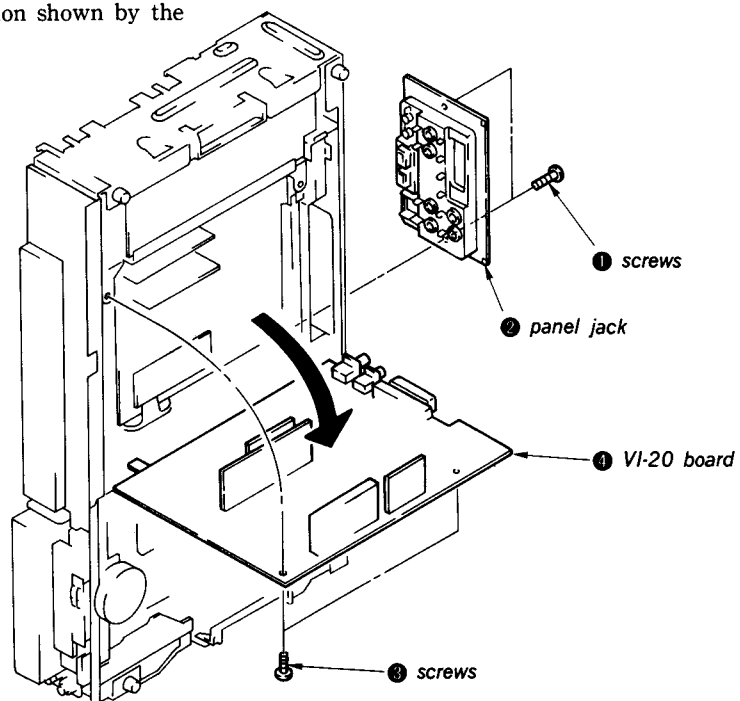
Note: At this time, take care not to injure the board by scratching it.

- 5) Open the TS-50 board in the direction shown by the arrow B.



2-8. OPENING OF VI-20 BOARD

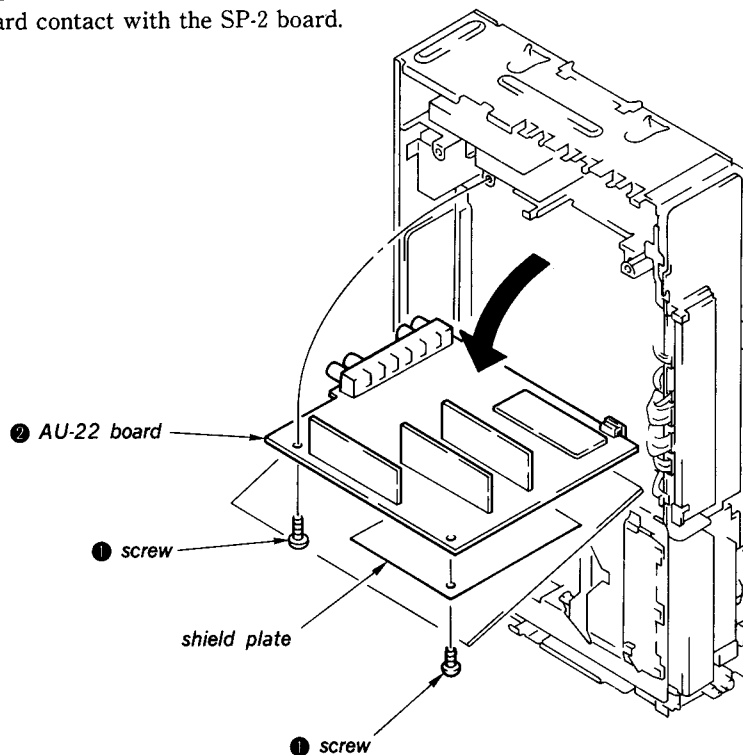
- 1) Remove the two screws ❶.
- 2) Remove the panel jack ❷.
- 3) Remove the two screws ❸.
- 4) Open the VI-20 board ❹ in the direction shown by the arrow.



2-9. OPENING OF AU-22 BOARD

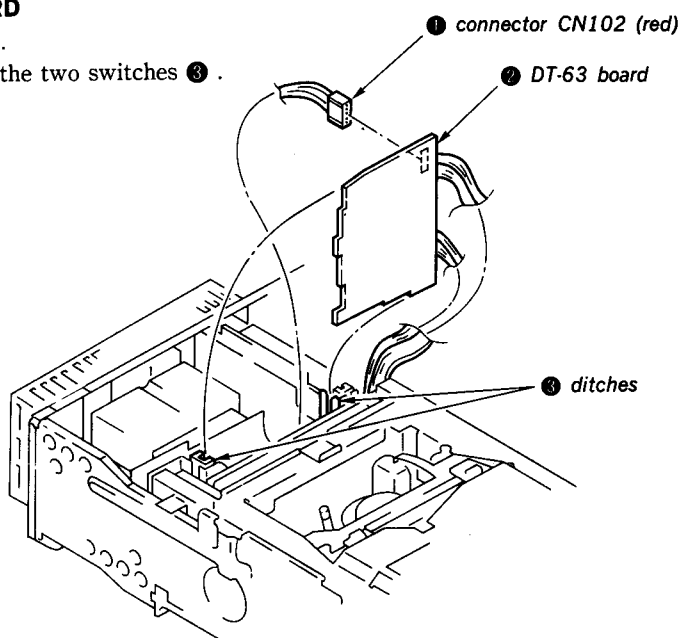
- 1) Refer to "REMOVAL OF SP-2 BOARD", and open the SP-2 board.
- 2) Remove the two screws ❶.
- 3) Open the AU-22 board ❷ in the direction shown by the arrow.

Note: When opening the AU-22 board, take care not to let the AU-22 board contact with the SP-2 board.



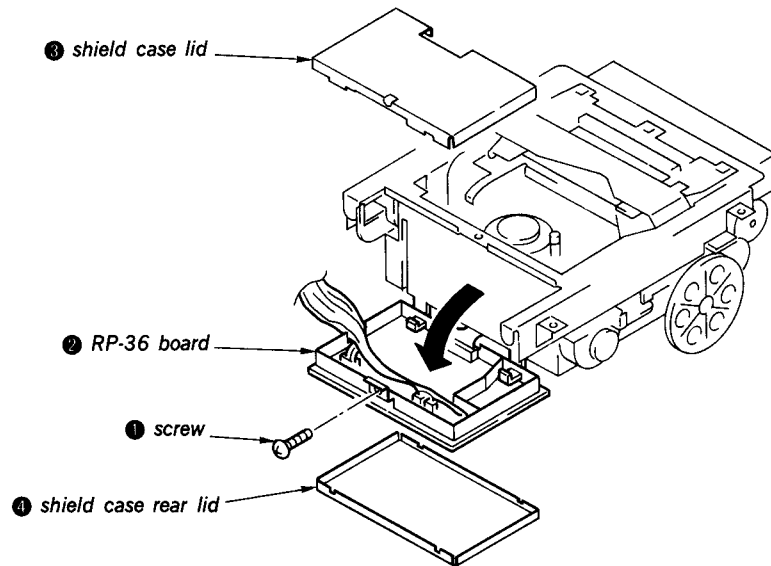
2-10. REMOVAL OF DT-63 BOARD

- 1) Pull out the connector (CN102) ❶.
- 2) Remove the DT-63 board ❷ from the two switches ❸.



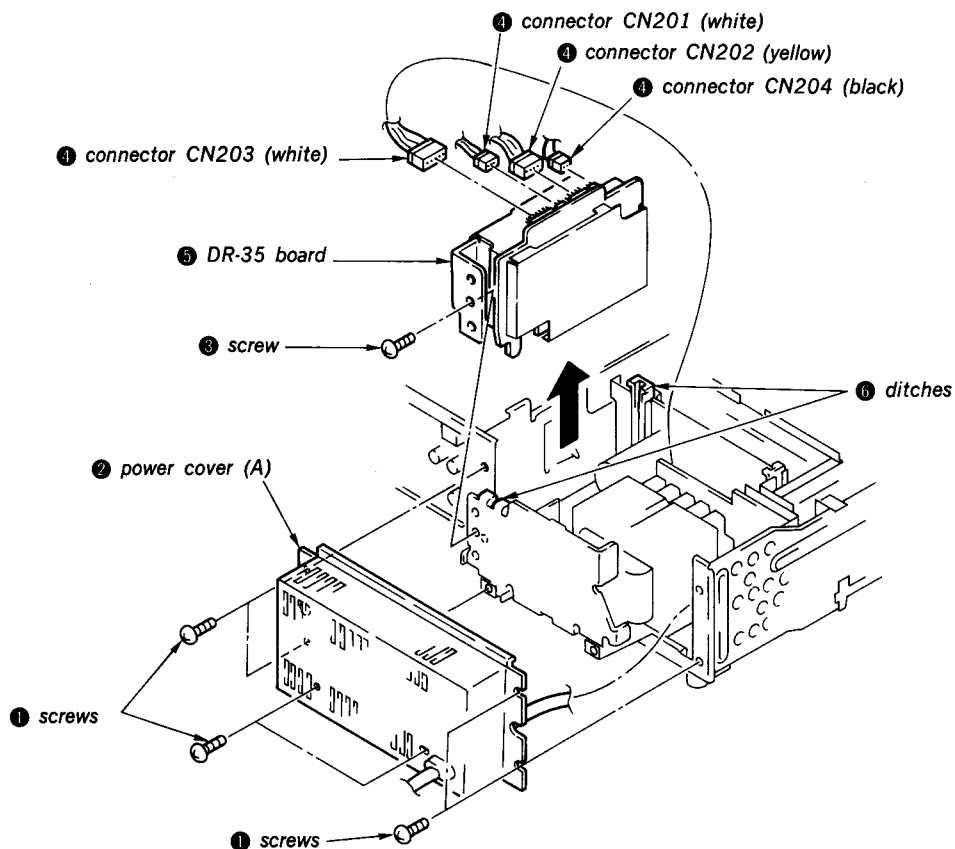
2-11. REMOVAL OF RP-36 BOARD

- 1) Refer to the "REMOVAL OF MECHANICAL BLOCK", and remove the mechanical block.
- 2) Remove the screw ❶.
- 3) Open the RP-36 board ❷ in the direction shown by the arrow.
- 4) Remove the shield case lid ❸ and shield case rear lid ❹.



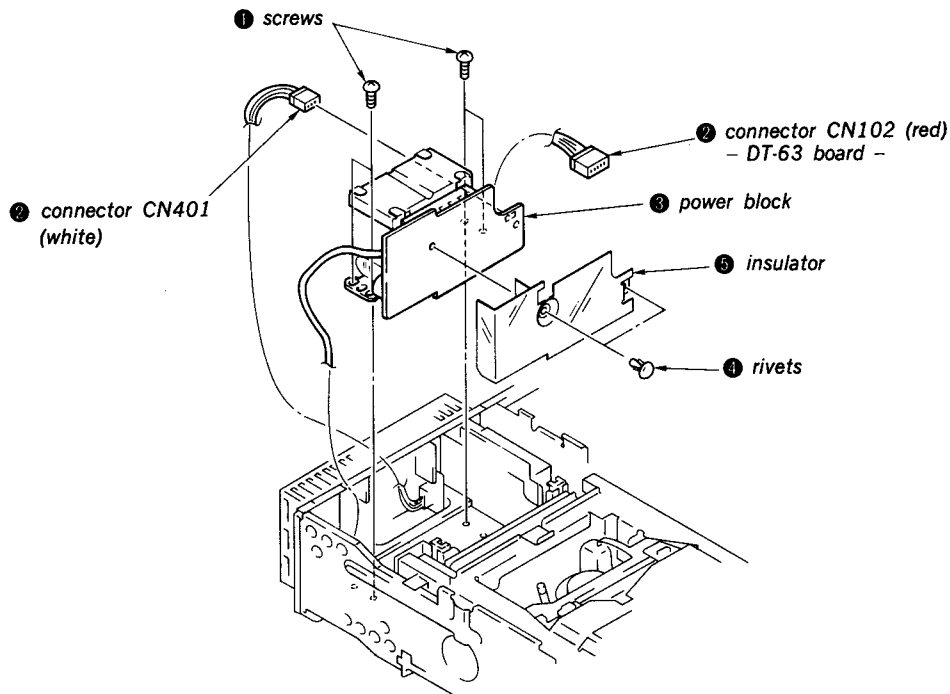
2-12. REMOVAL OF DR-35 BOARD

- 1) Remove the six screws ❶.
- 2) Remove the power cover (A) ❷.
- 3) Remove the screw ❸.
- 4) Pull out the four connectors (CN201, CN202, CN203, CN204) ❹.
- 5) Remove the DR-35 board ❺ from the two ditches ❻.



2-13. REMOVAL OF POWER BLOCK (DS-16 BOARD)

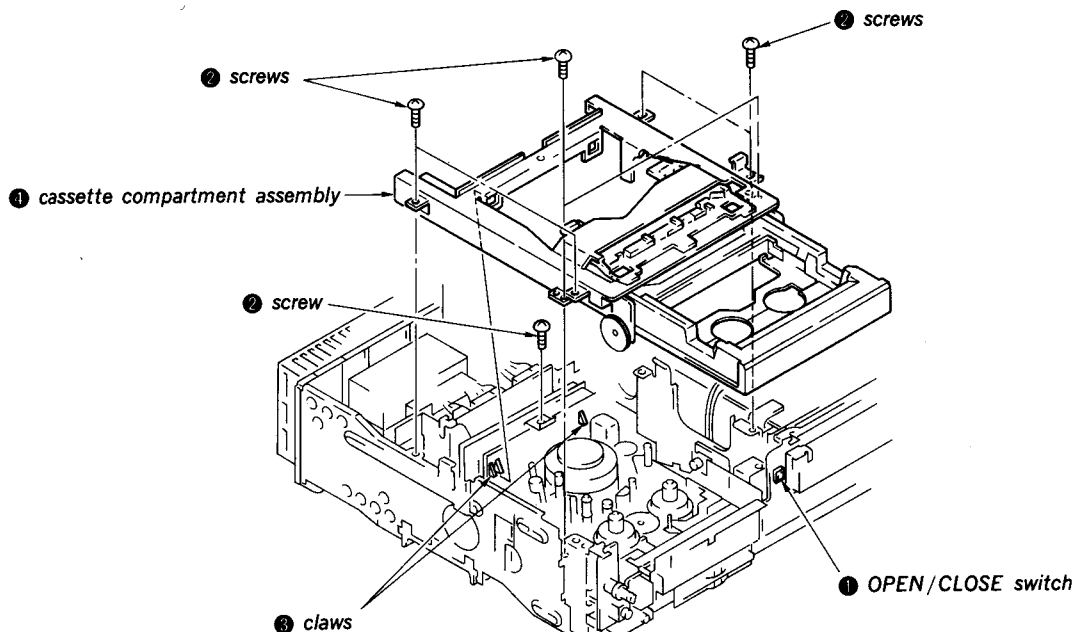
- 1) Refer to the "REMOVAL OF DT-63", and remove the DT-63 board.
- 2) Remove the four screws ①.
- 3) Pull out the two connectors (CN102, CN401) ②.
- 4) Remove the power block (DS-16 board) ③.
- 5) Remove the two rivets ④.
- 6) Remove the insulator ⑤.



2-14. REMOVAL OF CASSETTE COMPARTMENT ASSEMBLY

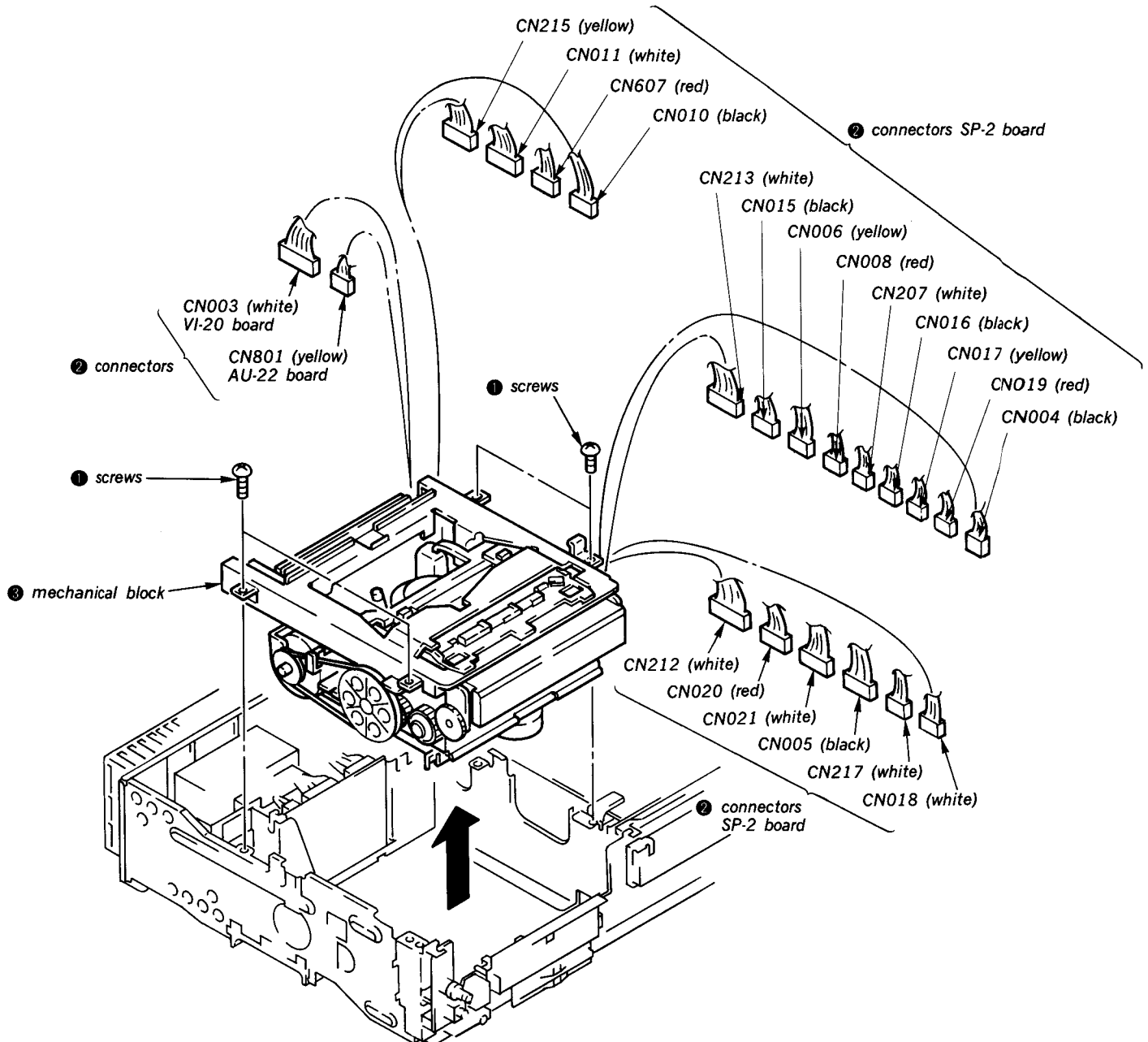
- 1) Turn on the power and push the OPEN/CLOSE switch ① then put the cassette compartment assembly ④ in the OPEN state.
- 2) Remove the seven screws ②.
- 3) Take off the two claws ③ and remove the cassette compartment assembly ④.

Note: After performing OPEN state, be sure to turn off the power before separating the assembly



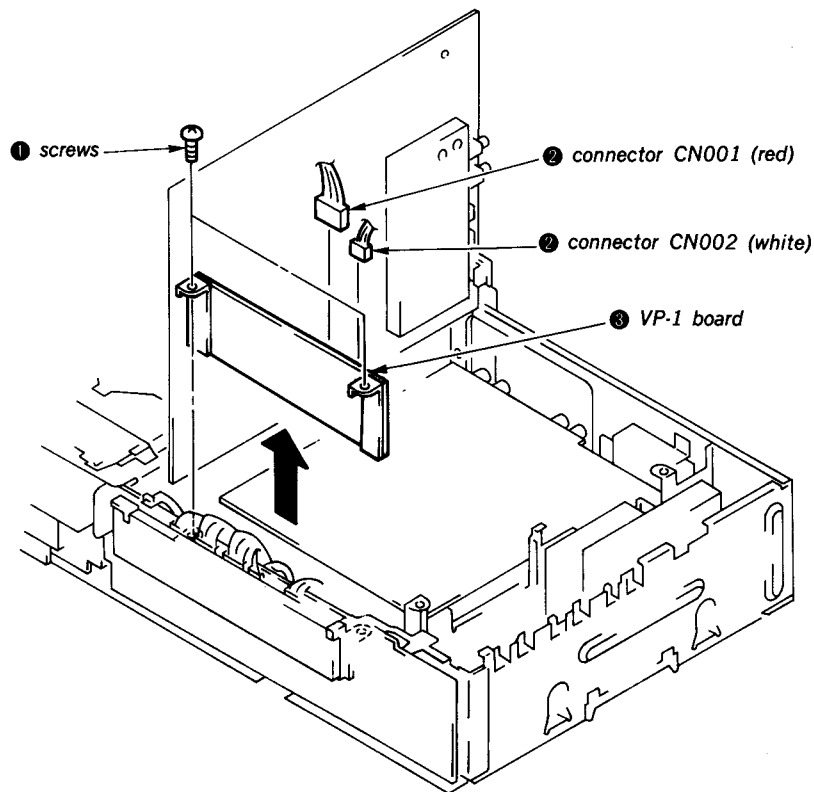
2-15. REMOVAL OF MECHANICAL BLOCK

- 1) Remove the four screws ❶.
- 2) Pull out the twenty one connectors (CN212, CN020, CN021, CN005, CN217, CN018, CN213, CN015, CN006, CN008, CN207, CN016, CN017, CN019, CN004, CN215, CN011, CN607, CN010, CN003, CN801) ❷.
- 3) Remove the mechanical block ❸ in the direction shown by the arrow.



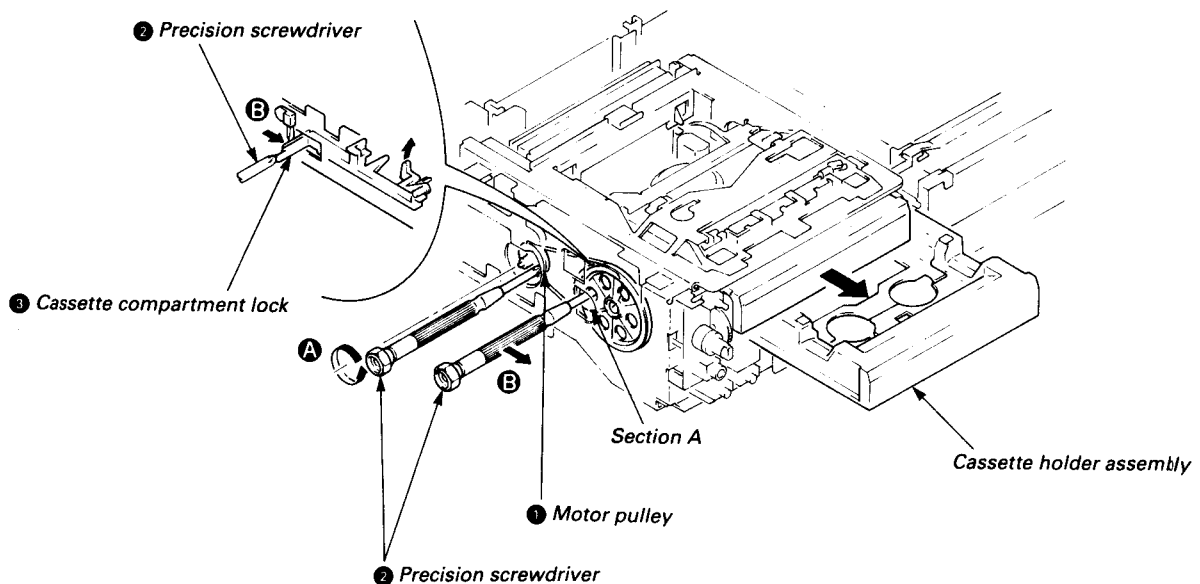
2-16. REMOVAL OF VP-1 BOARD

- 1) Refer to the "REMOVAL OF SP-2 BOARD", and open the SP-2 board.
- 2) Remove the two screws ❶.
- 3) Pull out the two connectors (CN001, CN002) ❷.
- 4) Remove the VP-1 board ❸ in the direction shown by the arrow.



2-17. METHOD OF EJECTING A CASSETTE TAPE WITHOUT TURNING THE POWER ON

- 1) Remove the upper case. (Refer to 2-1. Disassembly)
- 2) Insert the precision screwdriver ② into the motor pulley ①, and rotate it about half turn in the direction of arrow A. (The motor pulley may not turn since the cassette compartment assembly is locked. But, never try to rotate it forcibly.)
- 3) With the precision screwdriver ② etc. placed into Section A, press the cassette compartment lock ③ in the direction of arrow B to unlock it.
- 4) Place the precision screwdriver ② again to the motor pulley ①, and rotate it in the direction of arrow A until the cassette tape has been ejected.



2-18. METHOD FOR REPLACEMENT OF CASSETTE HOLDER ASSEMBLY

1. Removal

- 1) Remove the cassette compartment assembly in accordance with procedures described in Section 2, 2-14. (Subsequent works should be performed with the cassette compartment assembly upside down.)
- 2) While rotating the drive gear ❶ in the direction reverse to arrow A, remove the main gear assembly ❷ from a slot of Section A.
- 3) Pull up the cassette holder assembly ❸.

2. Re-assembly

- 1) Mount the cassette holder assembly ❸ on the synchronizing gear assembly ❹ while keeping them in parallel.
(For detailed re-assembly procedures, refer to Paragraphs ❶ to ❸ given below.)
 - ❶ Engage about half gears of Rack A of the cassette holder assembly ❸ with either left or right synchronizing gear assembly ❹.
- Note:** Front and rear Rack A should be simultaneously engaged with the synchronizing gears, and numbers of the engaging teeth should be identical.
- ❷ Similarly, engage a remaining synchronizing gear assembly ❹ with Rack A.

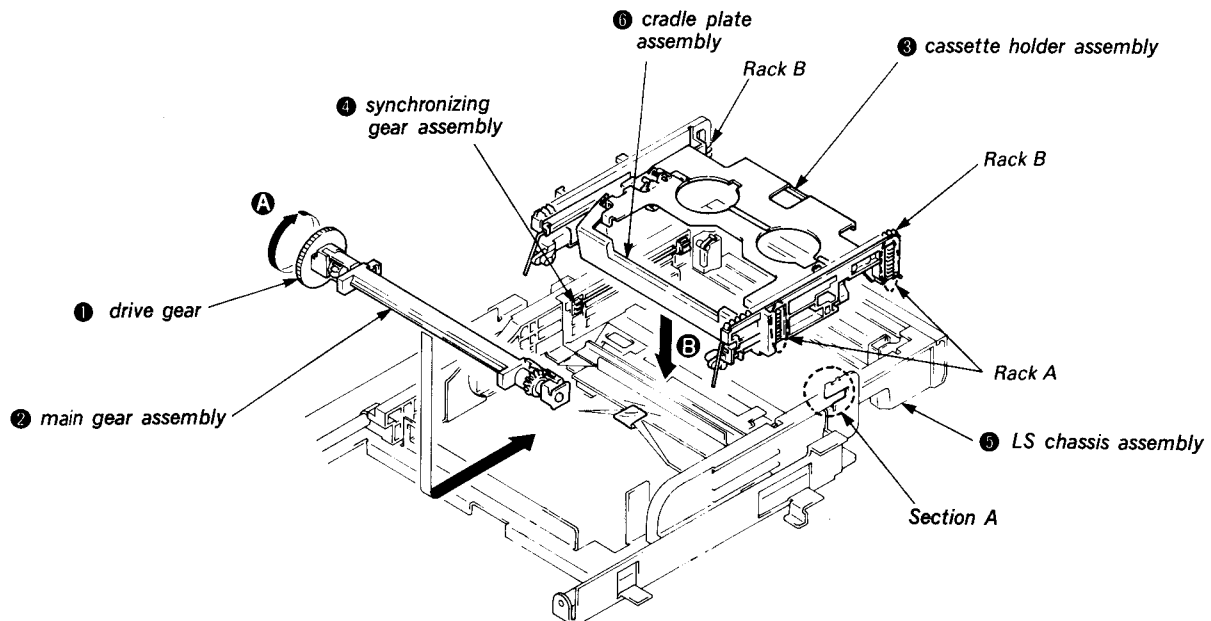
- ❸ Make sure that numbers of the engaging teeth of 4 Rack A and synchronizing gear assembly ❹ are identical. Then, press the cassette holder assembly ❸ in the direction of arrow B.

Note: Make sure that Rack B of the cassette holder assembly ❸ and a top of the LS chassis assembly are levelled (as viewed from the reverse side). If not levelled, repeat steps ❶ to ❸.

- 2) Pull out the LS chassis assembly ❺ to the front side, and mount the main gear assembly ❷ in a slot of Section A.
- 3) Rotating the drive gear ❶ in the direction of arrow A, engage Rack B of the cassette holder assembly ❸ with left and right main gears simultaneously.
- 4) Rotating the drive gear ❶ in the direction of arrow A, make sure that the cassette holder assembly ❸ moves up smoothly (as viewed from the reverse side).

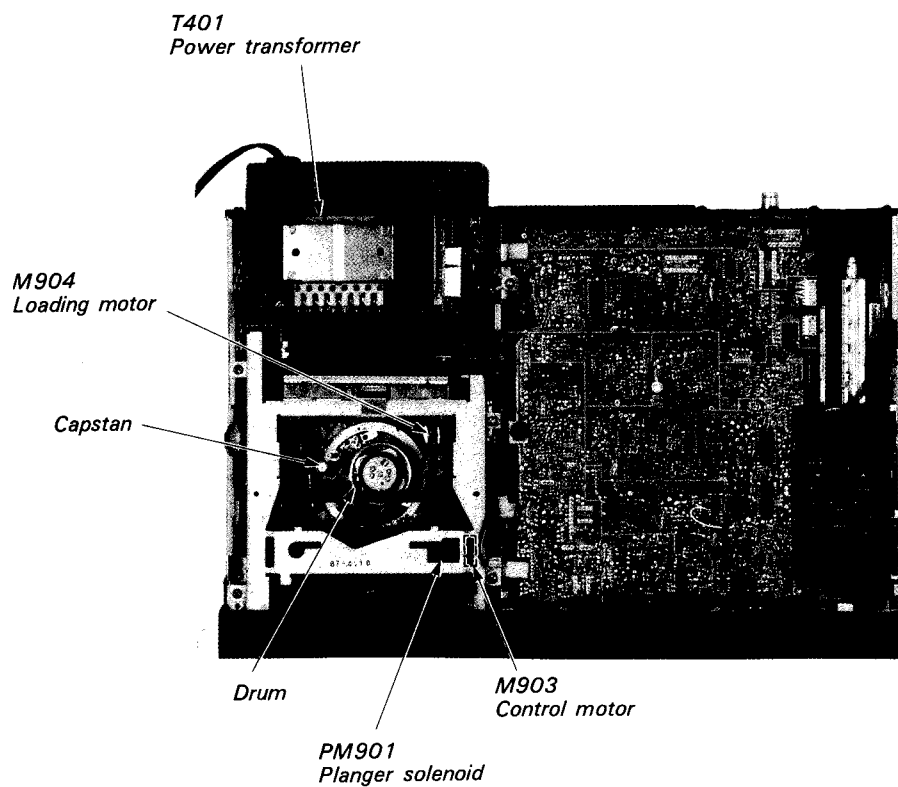
Note: Care should be taken so that the cassette holder assembly ❸ is not detached. The cradle plate assembly ❻ is likely to be caught by the chassis when the driver gear ❶ is rotated with the cassette compartment assembly upside down.

- 5) Mount the cassette compartment assembly in the procedures reverse to those described in 2-14.

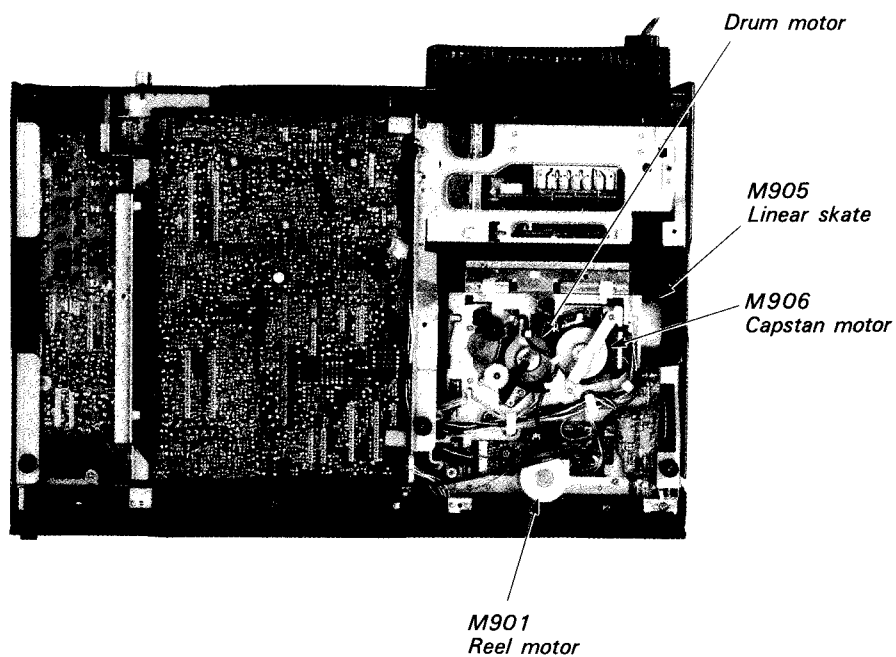


2-19. INTERNAL VIEWS

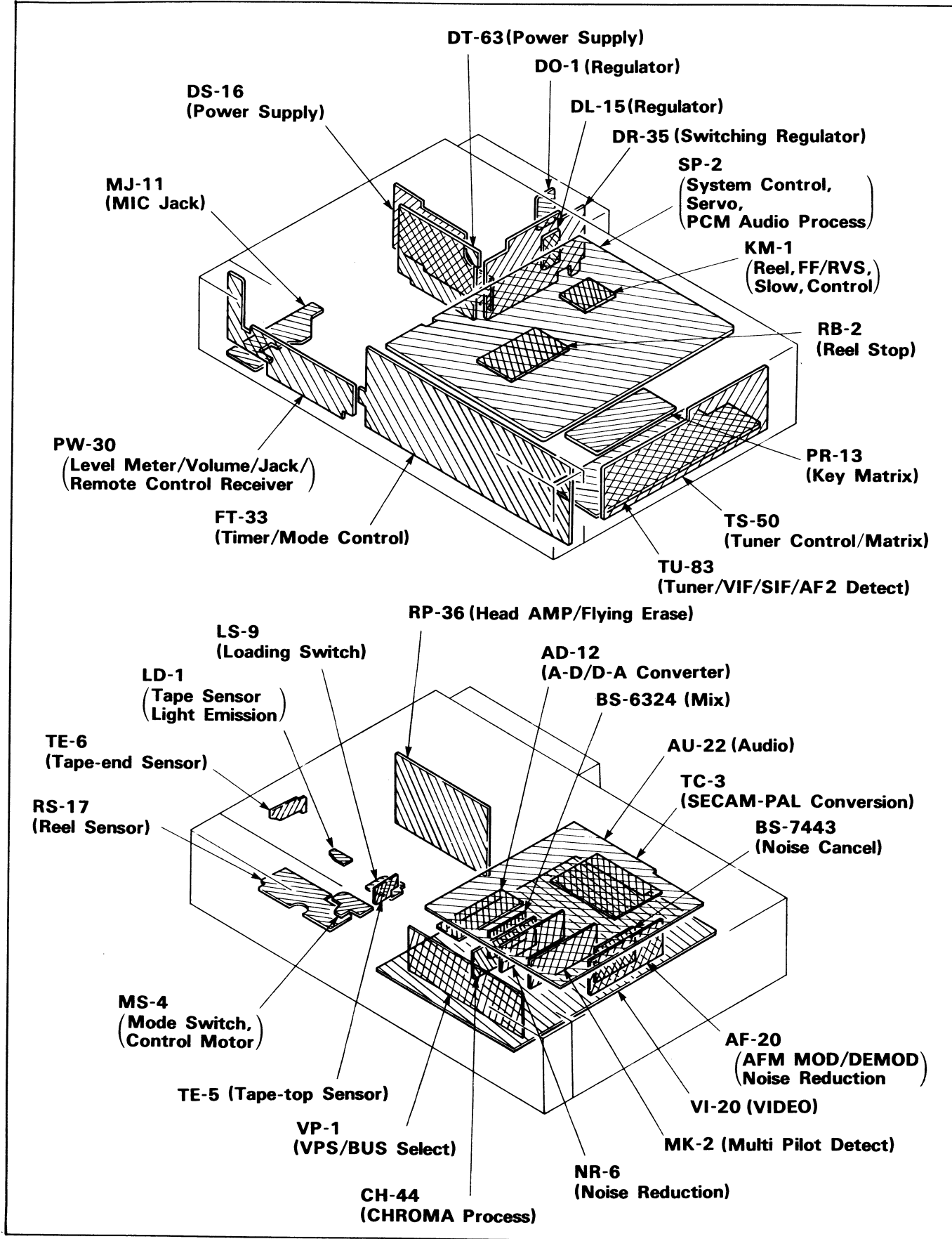
—Top side—



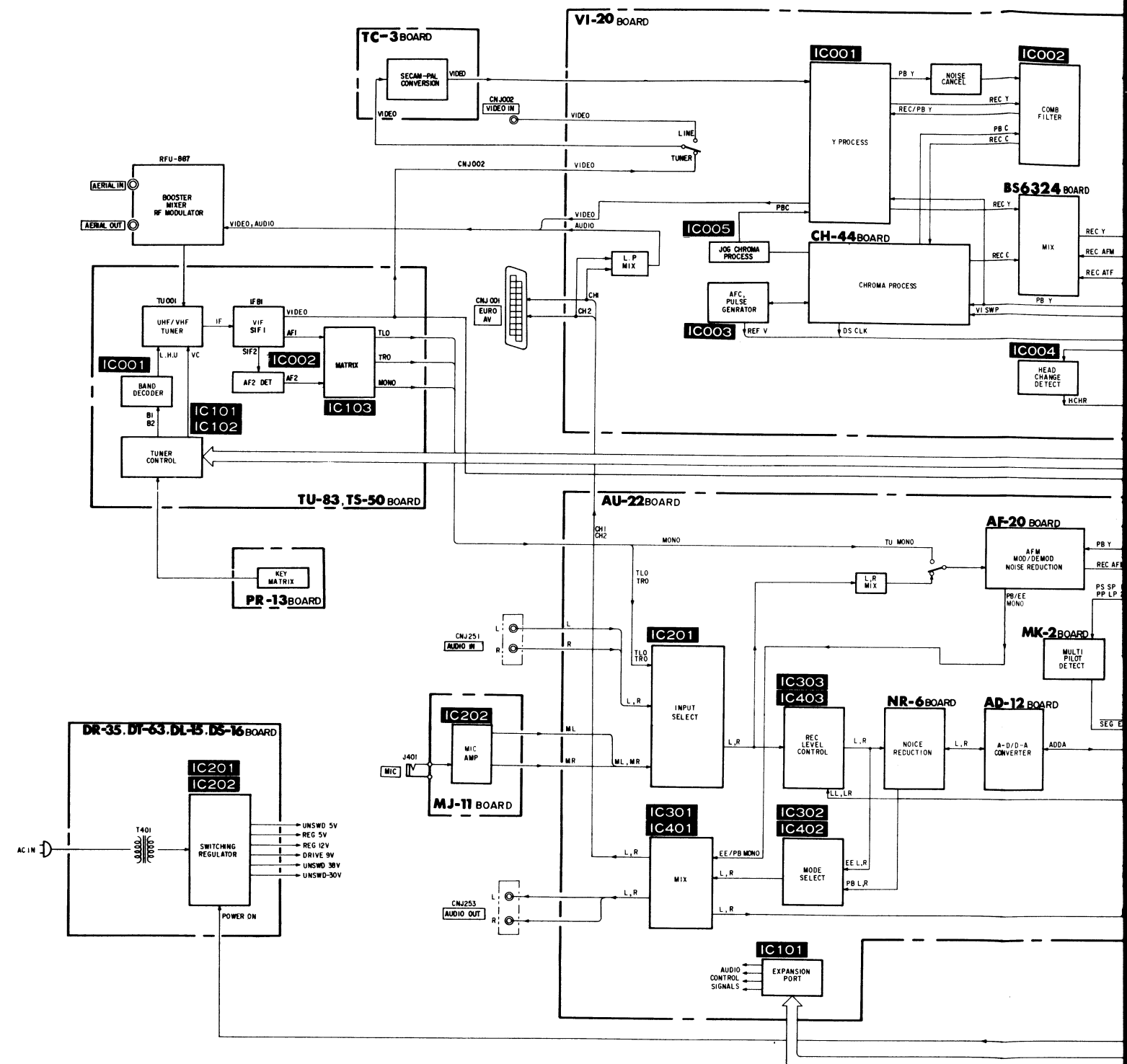
—Bottom side—



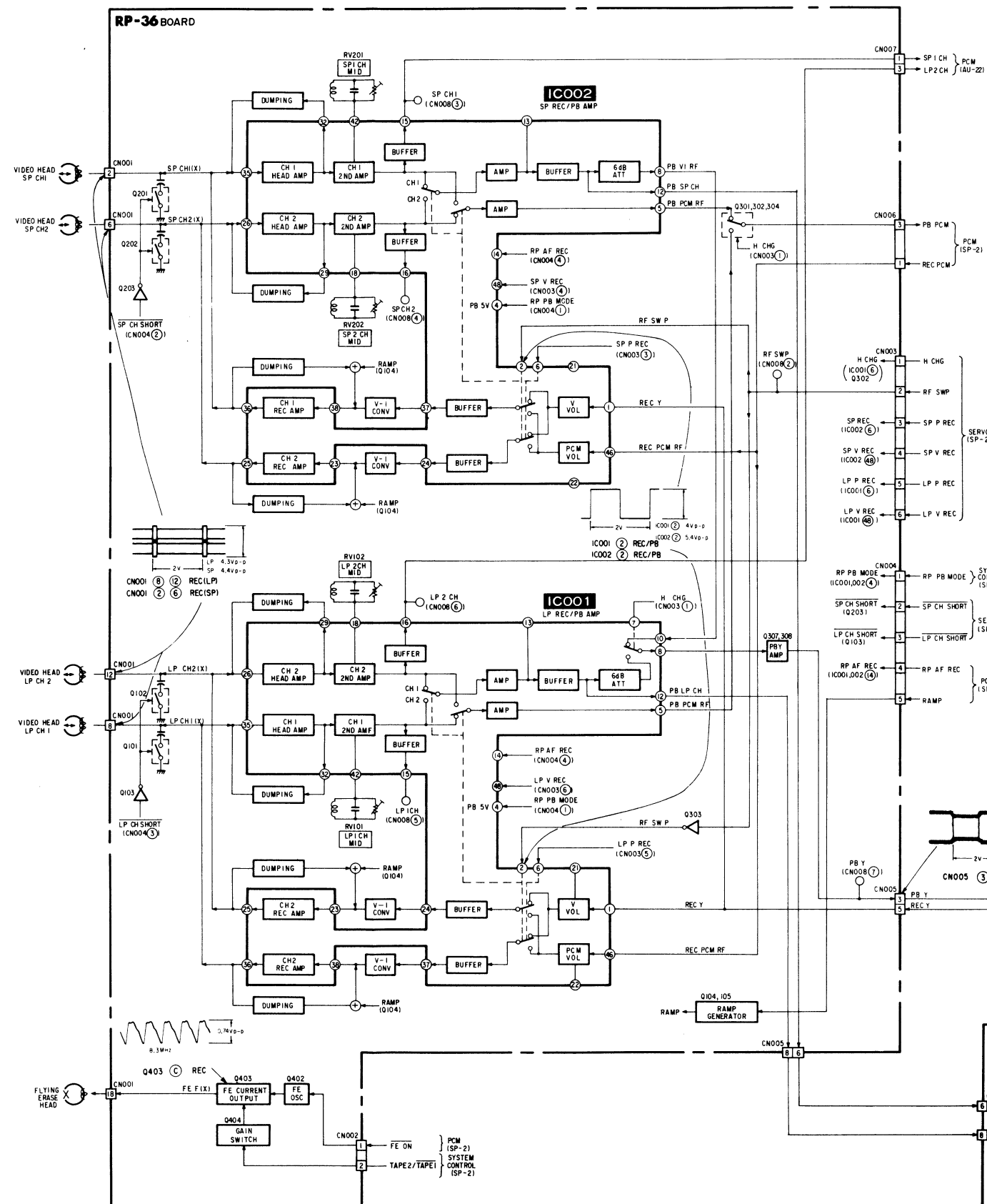
3-1. CIRCUIT BOARDS LOCATION



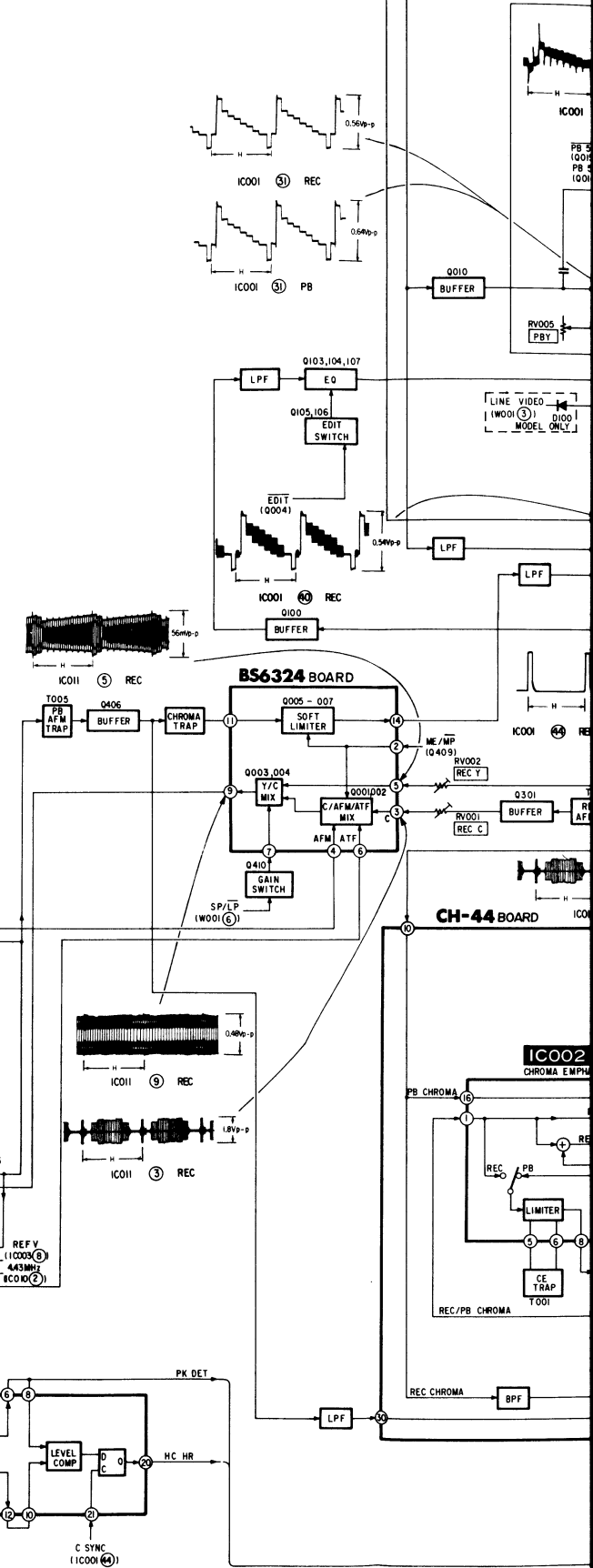
3-2. OVERALL BLOCK DIAGRAM



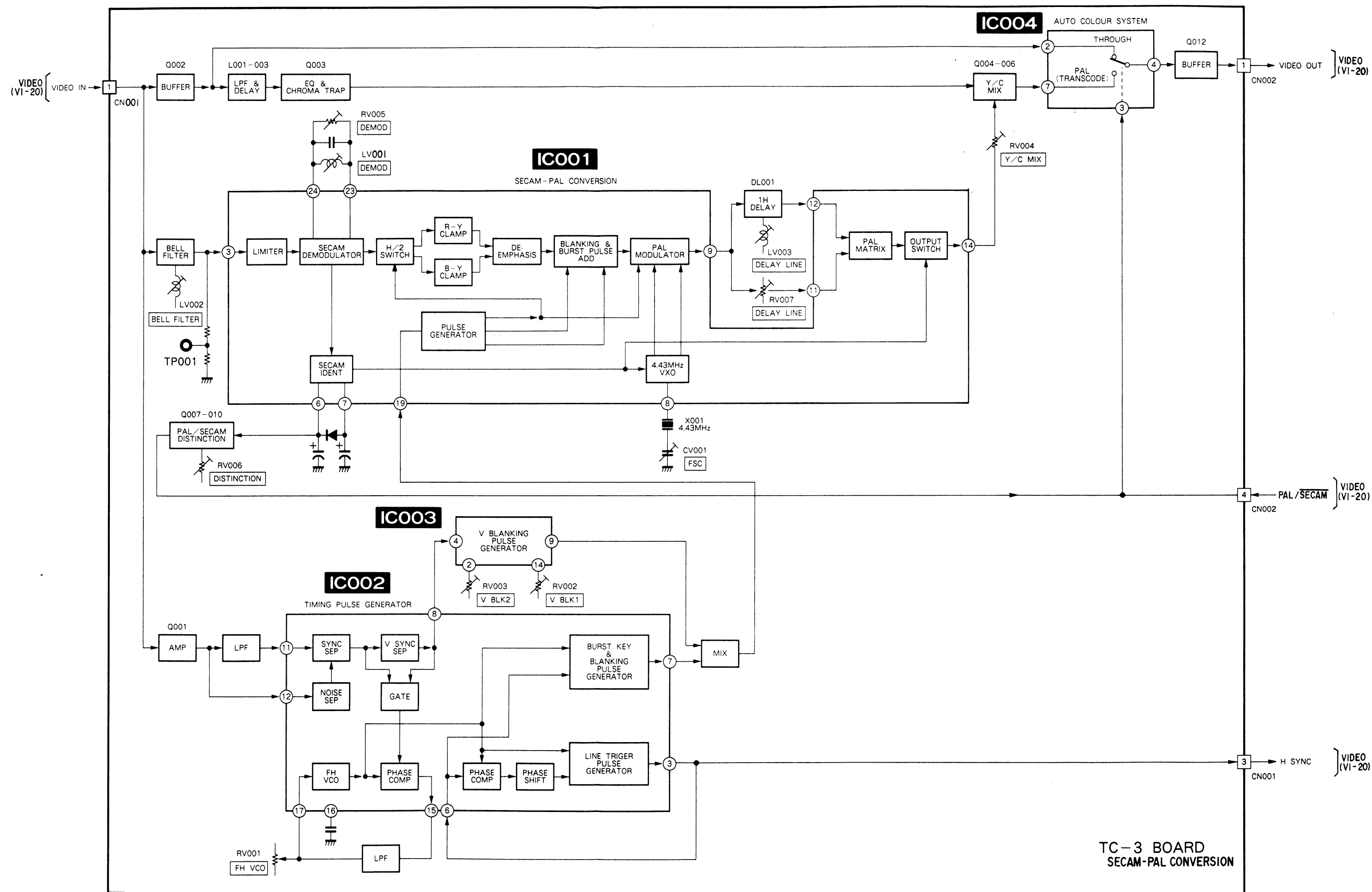
3-3. VIDEO BLOCK DIAGRAM

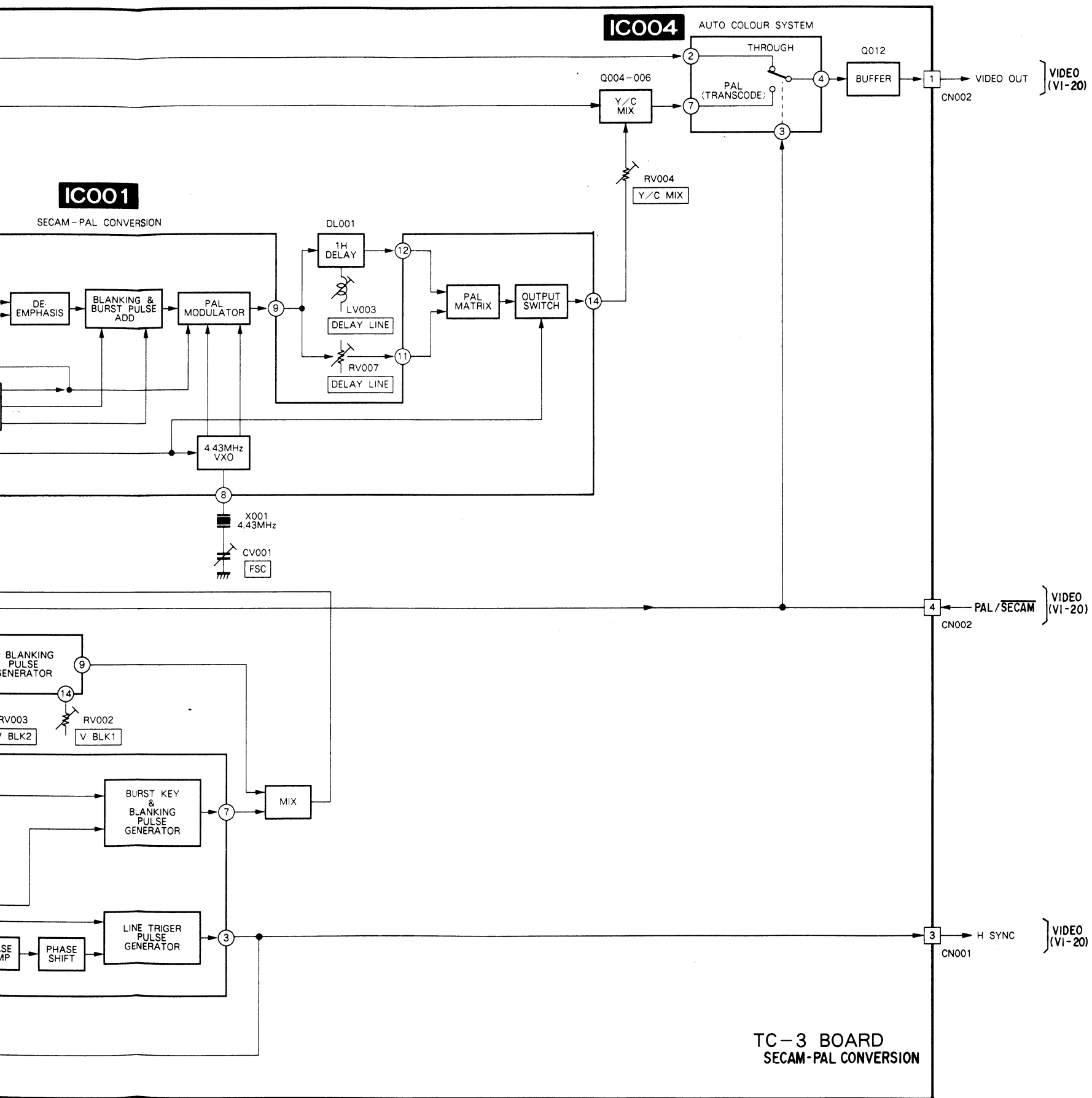


VI-20 BOARD

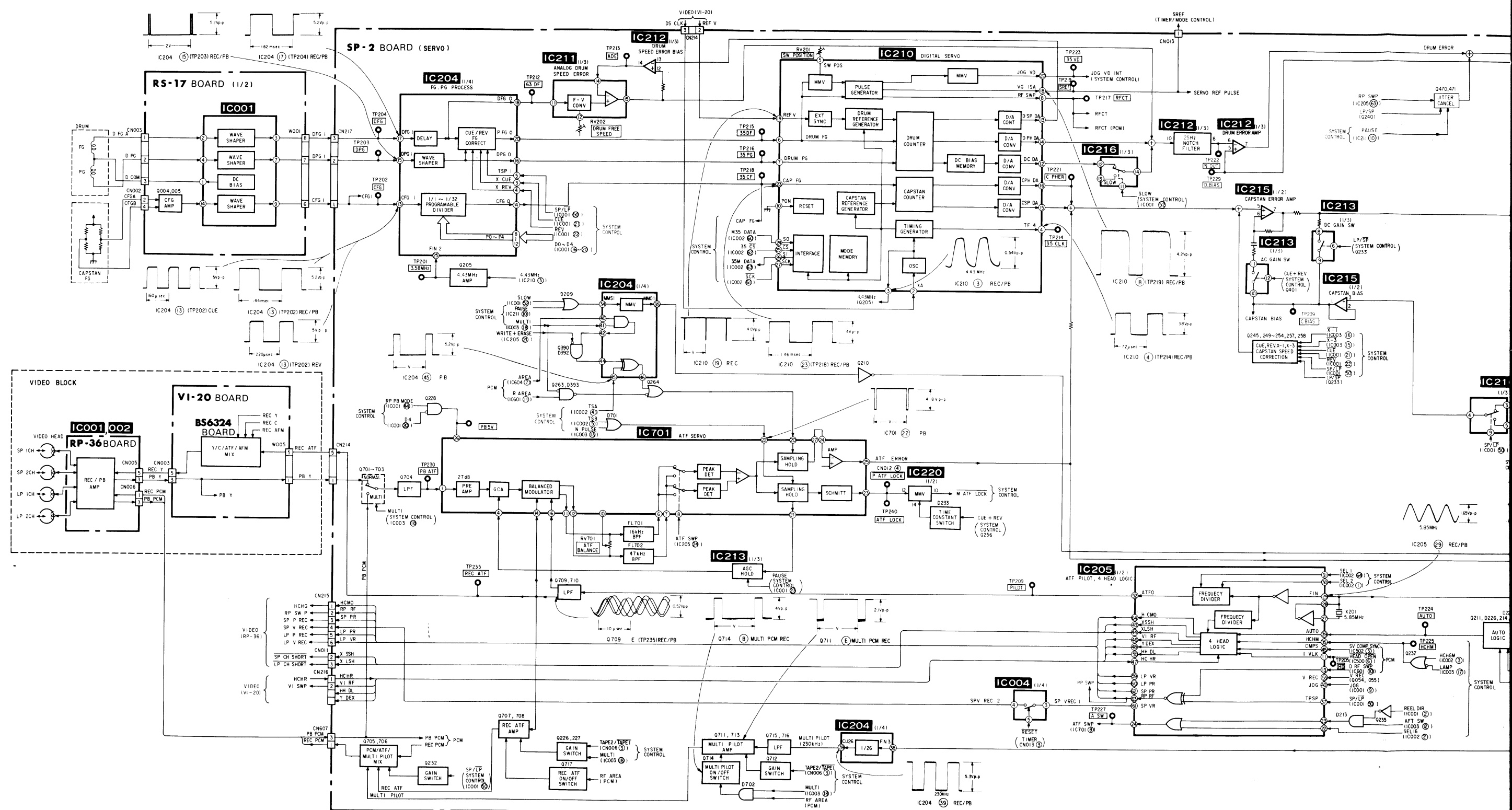


3-4. SECAM/PAL CONVERSION BLOCK DIAGRAM



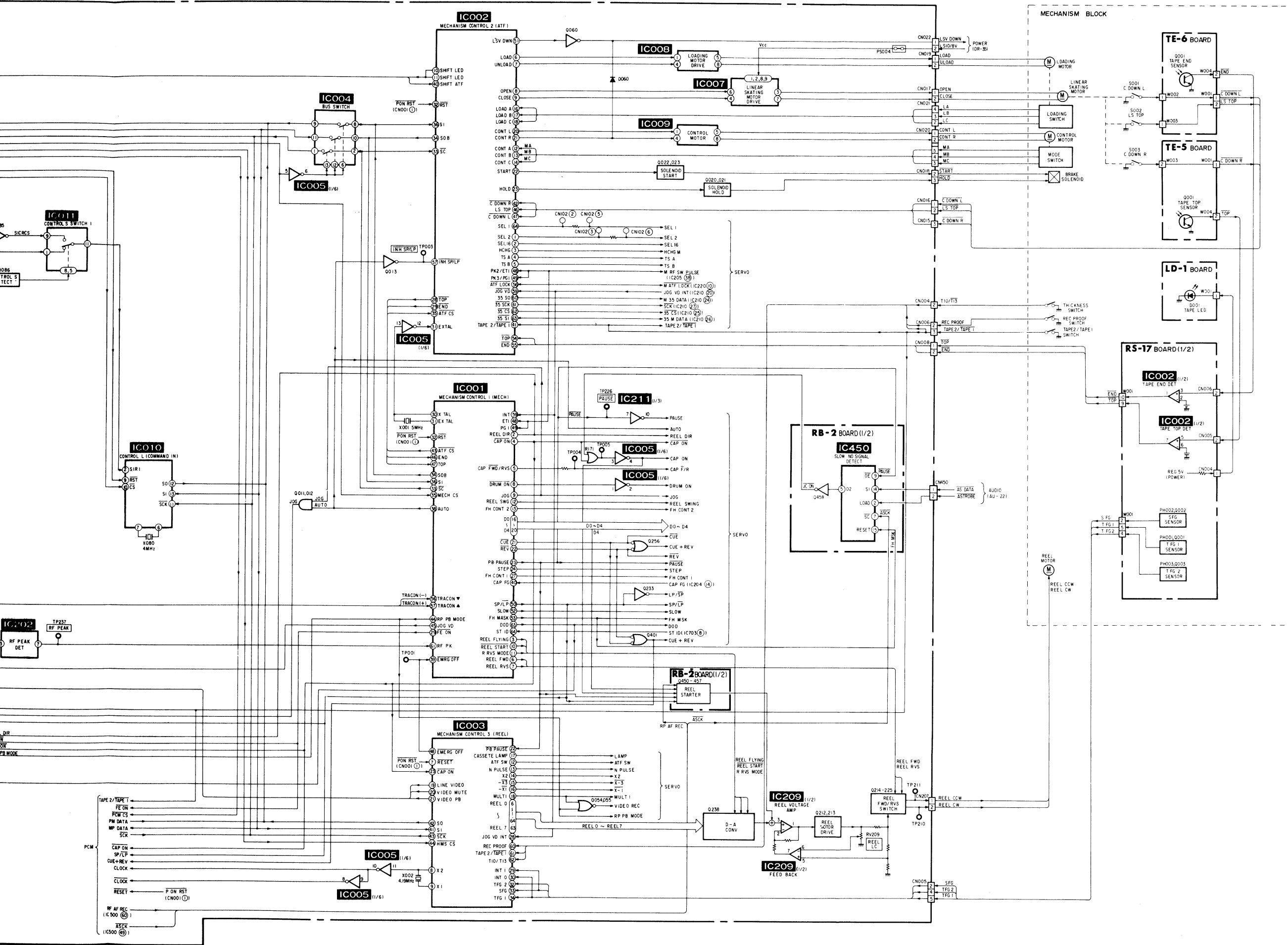


3-5. SERVO BLOCK DIAGRAM



The schematic diagram illustrates the electrical connections for a VCR control system, centered around the **SP-2 BOARD (SYSTEM CONTROL)**. The diagram includes the following components and their interconnections:

- FT-33 BOARD (1/4)**: Includes a **IC003** (PFS) and **IC004** (PFS) connected to the **SP-2 BOARD** via **CN002** and **CN003**.
- SP-2 BOARD (SYSTEM CONTROL)**: The central control board featuring numerous integrated circuits:
 - IC001** (MECHANISM CONTROL 1 (MECH))
 - IC002** (MECHANISM CONTROL 2 (ATF))
 - IC003** (MECHANISM CONTROL 3 (REEL))
 - IC004** (BUS SWITCH)
 - IC005** (1/6)
 - IC006** (1/6)
 - IC007** (1/6)
 - IC008** (1/6)
 - IC009** (1/6)
 - IC010** (CONTROL L (COMMAND IN))
 - IC011** (CONTROL S SWITCH 1)
 - IC012** (1/6)
 - IC013** (1/6)
 - IC014** (1/6)
 - IC015** (1/6)
 - IC016** (1/6)
 - IC017** (1/6)
 - IC018** (1/6)
 - IC019** (1/6)
 - IC020** (1/6)
 - IC021** (1/6)
 - IC022** (1/6)
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 - IC028** (1/6)
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 - IC201** (1/6)
 - IC202** (1/6)
 - IC203** (1/6)
 - IC204** (1/6)
 - IC2**



3-7. SYSTEM CONTROL — REC PAUSE BLOCK INTERFACE

| MODE | | | STOP | FF | REW | SEARCH | SEARCH | REC | REC PAUSE | AF REC | AF REC PAUSE | PB | PB PAUSE | |
|------------|-----|----------------|------|----|-----|--------|--------|-----|-----------|--------|--------------|----|----------|--|
| SIGNAL | I/O | Pin No. | | | | | | | | | | | | |
| RP PB MODE | O | IC001④Pin | H | H | H | H | H | L | L | H | H | H | H | |
| VIDEO REC | O | Q054 collector | L | L | L | L | L | H | L | L | L | L | L | |
| RP AF REC | O | IC500⑥Pin | L | L | L | L | L | L | L | H | H | L | L | |
| H CHG | O | IC002③Pin | *1 | *1 | *1 | *1 | *1 | *1 | *1 | *1 | *2 | *1 | *2 | |
| M FE ON | O | IC500①Pin | H | H | H | H | H | *3 | H | *2 | H | H | H | |

*1 Be caused by Tape speed select
*2 Output pulse
*3 At "L" during the NORMAL or at output pulse during MULTI

3-8. SYSTEM CONTROL — VIDEO BLOCK INTERFACE

| MODE | | | STOP | FF | REW | SEARCH | SEARCH | REC | REC PAUSE | AF REC | AF REC PAUSE | PB | PB PAUSE | |
|---------------|-----|------------|-----------------------|----|-----|--------|--------|-----|-----------|--------|--------------|----|----------|--|
| SIGNAL | I/O | Pin No. | | | | | | | | | | | | |
| VIDEO PB | O | IC003②Pin | L | L | L | L | L | L | L | H | H | H | H | |
| VIDEO MUTE | O | IC003②⑩Pin | L | L | L | H | H | L | L | L | L | L | L | |
| LINE VIDEO | O | IC003⑩Pin | Be cause by input s | | | | | | | | | | | |
| JOG | O | IC001⑨Pin | L | L | L | L | L | L | L | H | H | L | H | |
| DOD | O | IC001⑬Pin | L | L | L | L | L | L | L | | | L | | |
| TAPE 2/TAPE 1 | O | CN009④Pin | Be caused by cass | | | | | | | | | | | |
| SP/LP | O | IC001⑤⑩Pin | Be caused by Tape Spe | | | | | | | | | | | |
| JOG VD | O | IC001④⑤Pin | NON | | | | | | | | YES | | NON | |

3-9. SYSTEM CONTROL — CAPSTAN MOTOR BLOCK INTERFACE

| MODE | | | STOP | FF | REW | SEARCH | SEARCH | REC | REC PAUSE | AF REC | AF REC PAUSE | PB | PB PAUSE | |
|-------------|-----|-------------|------|-----|-----|--------|--------|-----|-----------|--------|--------------|-----|----------|--|
| SIGNAL | I/O | Pin No. | | | | | | | | | | | | |
| CAP ON | O | IC001④Pin | H | H | H | L | L | L | H | L | H | L | H | |
| CAP ON | O | IC005④Pin | L | L | L | H | H | H | L | H | L | H | L | |
| CAP FWD/RVS | O | IC001⑤Pin | L | L | L | L | H | L | L | L | L | L | L | |
| D0-D4 | O | IC001⑩~⑭Pin | "1" | "1" | "1" | *2 | *2 | "1" | "1" | "1" | "1" | "1" | "1" | |
| CUE | O | IC001⑪Pin | H | H | H | H | H | H | H | H | H | H | H | |
| REV | O | IC00②②Pin | H | H | H | H | H | H | H | H | H | H | H | |
| PB PAUSE | O | IC001③Pin | H | H | H | H | H | H | H | H | L | H | L | |
| — x 1 | O | IC003⑩Pin | H | H | H | H | H | H | H | H | H | H | H | |
| — x 3 | O | IC003⑩⑮Pin | H | H | H | H | H | H | H | H | H | H | H | |

*1 Output pulse
*2 PAL "18" — "17" NTSC "25" — "24"

3-7. SYSTEM CONTROL — REC PAUSE BLOCK INTERFACE

| MODE | | | STOP | FF | REW | SEARCH | -SEARCH | REC | REC PAUSE | AF REC | AF REC PAUSE | PB | PB PAUSE | x 1 | - x 1 | x 2 | - x 2 | x 9 | - x 9 | SLOW (1/5, 1/10) | SLOW (-1/5, -1/10) | CUE | REV |
|------------|-----|----------------|------|----|-----|--------|---------|-----|-----------|--------|--------------|----|----------|-----|-------|-----|-------|-----|-------|------------------|--------------------|-----|-----|
| SIGNAL | I/O | Pin No. | | | | | | | | | | | | | | | | | | | | | |
| RP PB MODE | O | IC001④Pin | H | H | H | H | H | L | L | H | H | H | H | H | H | H | H | H | H | H | H | H | H |
| VIDEO REC | O | Q054 collector | L | L | L | L | L | H | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| RP AF REC | O | IC500⑥Pin | L | L | L | L | L | L | L | H | H | L | L | L | L | L | L | L | L | L | L | L | L |
| H CHG | O | IC002③Pin | *1 | *1 | *1 | *1 | *1 | *1 | *1 | *1 | *2 | *1 | *2 | *1 | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 |
| M FE ON | O | IC500①Pin | H | H | H | H | H | *3 | H | *2 | H | H | H | H | H | H | H | H | H | H | H | H | H |

*1 Be caused by Tape speed select
*2 Output pulse
*3 At "L" during the NORMAL or at output pulse during MULTI

3-8. SYSTEM CONTROL — VIDEO BLOCK INTERFACE

| MODE | | | STOP | FF | REW | SEARCH | -SEARCH | REC | REC PAUSE | AF REC | AF REC PAUSE | PB | PB PAUSE | x 1 | - x 1 | x 2 | - x 2 | x 9 | - x 9 | SLOW (1/5, 1/10) | SLOW (-1/5, -1/10) | CUE | REV |
|---------------|-----|-----------|--------------------------------|----|-----|--------|---------|-----|-----------|--------|--------------|-----|----------|-----|-------|-----|-------|-----|-------|------------------|--------------------|-----|-----|
| SIGNAL | I/O | Pin No. | | | | | | | | | | | | | | | | | | | | | |
| VIDEO PB | O | IC003②Pin | L | L | L | L | L | L | L | H | H | H | H | H | H | H | H | H | H | H | H | H | H |
| VIDEO MUTE | O | IC003②Pin | L | L | L | H | H | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| LINE VIDEO | O | IC003⑨Pin | Be cause by input select | | | | | | | | | | | | | | | | | | | | |
| JOG | O | IC001⑨Pin | L | L | L | L | L | L | L | H | H | L | H | H | H | H | H | H | H | H | H | H | H |
| DOD | O | IC001⑥Pin | L | L | L | L | L | L | L | | | L | | | | | | | | | | | |
| TAPE 2/TAPE 1 | O | CN009④Pin | Be caused by cassette | | | | | | | | | | | | | | | | | | | | |
| SP/LP | O | IC001⑤Pin | Be caused by Tape Speed Select | | | | | | | | | | | | | | | | | | | | |
| JOG VD | O | IC001④Pin | NON | | | | | | | YES | | NON | | YES | | | | | | | | | |

3-9. SYSTEM CONTROL — CAPSTAN MOTOR BLOCK INTERFACE

| MODE | | | STOP | FF | REW | SEARCH | -SEARCH | REC | REC PAUSE | AF REC | AF REC PAUSE | PB | PB PAUSE | x 1 | - x 1 | x 2 | - x 2 | x 9 | - x 9 | SLOW (1/5, 1/10) | SLOW (-1/5, -1/10) | CUE | REV |
|-------------|-----|-------------|------|-----|-----|--------|---------|-----|-----------|--------|--------------|-----|----------|-----|-------|-----|-------|-----|-------|------------------|--------------------|-----|-----|
| SIGNAL | I/O | Pin No. | | | | | | | | | | | | | | | | | | | | | |
| CAP ON | O | IC001④Pin | H | H | H | L | L | L | H | L | H | L | H | L | L | L | L | L | L | *1 | *1 | L | L |
| CAP ON | O | IC005④Pin | L | L | L | H | H | H | L | H | L | H | L | H | H | H | H | H | H | *1 | *1 | H | H |
| CAP FWD/RVS | O | IC001⑤Pin | L | L | L | L | H | L | L | L | L | L | L | L | H | L | H | L | H | *1 | *1 | L | H |
| D0-D4 | O | IC001⑮~⑳Pin | "1" | "1" | "1" | *2 | *2 | "1" | "1" | "1" | "1" | "1" | "1" | "1" | "1" | "2" | "2" | "9" | "7" | "1" | "1" | "9" | "7" |
| CUE | O | IC001②Pin | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | L | H |
| REV | O | IC00②Pin | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | H | L |
| PB PAUSE | O | IC001③Pin | H | H | H | H | H | H | H | H | L | H | L | H | H | H | H | H | H | L | L | H | H |
| - x 1 | O | IC003⑮Pin | H | H | H | H | H | H | H | H | H | H | H | H | L | H | H | H | H | H | H | H | H |
| - x 3 | O | IC003⑮Pin | H | H | H | H | H | H | H | H | H | H | H | H | H | H | L | H | H | H | H | H | H |

*1 Output pulse
*2 PAL "18" — "17" NTSC "25" — "24"

D4 MSB
D0 LSB
(decimal notation)

3-10. SYSTEM CONTROL—DRUM MOTOR INTERFACE

| SIGNAL | MODE | | STOP | FF | REW | SEARCH | —SEARCH | REC | REC PAUSE | AF REC | AF REC PAUSE | PB | PB PAUSE | ×2 | CUE | REV |
|----------|------|-----------|------|----|-----|--------|---------|-----|-----------|--------|--------------|----|----------|----|-----|-----|
| | I/O | Pin No. | | | | | | | | | | | | | | |
| DRUM ON | O | IC001⑧Pin | H | L | L | L | L | L | L | L | L | L | L | L | L | L |
| STEP | O | IC001②Pin | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| FH CONT1 | O | IC001⑦Pin | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| FH CONT2 | O | IC001⑬Pin | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| (SLOW) | O | IC001⑫Pin | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| FH MASK | O | IC001⑬Pin | H | H | H | H | H | H | H | H | H | H | H | H | H | H |

3-11. SYSTEM CONTROL—REEL MOTOR INTERFACE

| SIGNAL | MODE | | STOP | FF | REW | SEARCH | —SEARCH | REC | REC PAUSE | AF REC | AF REC PAUSE | PB | PB PAUSE | ×2 | CUE | REV |
|-------------|------|---------------------|------|------|----------------|--------|---------|------|-----------|--------|--------------|------|----------|------|-----|-----|
| | I/O | Pin No. | | | | | | | | | | | | | | |
| REEL FWD | O | IC001⑥Pin | L | H | L | H | L | H | L | H | L | H | L | H | H | L |
| REEL RVS | O | IC001⑦Pin | L | L | H | L | H | L | L | L | L | L | L | L | L | H |
| DOD | O | IC001⑬Pin | H/L | L | H | L | H | L | H | H | L | L | H/L | L | H | H |
| REEL DIR | O | IC001②Pin | H/L | L | H | L | H | L | H | L | L | L | H/L | L | L | H |
| REEL FLYING | O | IC001③Pin | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| REEL START | O | IC001⑩Pin | H | H | H | H | H | H | H | H | H | H | H | H | H | H |
| R RVS MODE | O | IC001⑪Pin | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| REEL SWG | O | IC001⑫Pin | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| REEL 0 ~ 7 | O | IC003①~⑥, ⑧,⑨Pin | "70" | "96" | "96" "89"*5 | "A6" | "9C" | "54" | "54" | "54" | "54" | "54" | "70" | "70" | *3 | *3 |
| *5 FWD | O | IC003⑩Pin | H | H | H | L | H | L | H | L | H | L | H | L | L | H |

*3 Be caused by NTSC/PAL, SP/LP
*5 After the digit — 15 (101001 ~)

REEL 7 MSB
REEL 0 LSB
(BCD Code)

3-12. SYSTEM CONTROL—ATF SERVO BLOCK INTERFACE

| SIGNAL | MODE | | STOP | FF | REW | SEARCH | —SEARCH | REC | REC PAUSE | AF REC | AF REC PAUSE | PB | PB PAUSE | ×2 | CUE | REV |
|---------------|------|---------------|--------------------------------------------------------|--------------------------|-----|--------|---------|-----|-----------|--------|--------------|----|----------|----|-----|-----|
| | I/O | Pin No. | | | | | | | | | | | | | | |
| ATF SW | O | IC003⑫Pin | L | L | L | L | L | L | L | L | *1 | L | *1 | L | L | L |
| SEL16 | O | IC002②Pin | L | L | L | L | L | *2 | L | *2 | L | *2 | L | *2 | *2 | *2 |
| TSA | O | IC002④Pin | L | L | L | H | H | L | L | *2 | L | *2 | L | *2 | L | L |
| TSB | O | IC002⑤Pin | L | L | L | H | H | L | L | *2 | L | *2 | L | *2 | L | L |
| MULTI | O | IC003⑬Pin | Be caused by NORMAL/MULTI select switch and Tape state | | | | | | | | | | | | | |
| N PULSE | O | IC003⑬Pin | L | L | L | L | L | L | L | L | *1 | L | *1 | L | L | L |
| TAPE 2/TAPE 1 | O | Q227⑧ | Be caused by CASSETTE | | | | | | | | | | | | | |
| RP PB MODE | O | IC001⑭Pin | H | H | H | H | H | L | L | H | H | H | H | H | | |
| SEL 1 | O | IC002⑥Pin | H | H | H | H | H | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 |
| SEL 2 | O | IC002①Pin | H | H | H | H | H | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 |
| M RF SW PULSE | I | IC002④, ⑨Pin | H/L | FIELD synchronized pulse | | | | | | | | | | | | |
| JOG VD INT | I | IC001,002⑤Pin | L | Input pulse | | | | | | | | | | | | |

*1 Output pulse
*2 Be caused by ATF sequence

3-13. SYSTEM CONTROL – STILL BLOCK INTERFACE

| MODE | | | STOP | FF | REW | SEARCH | —SEARCH | REC | REC PAUSE | AF REC | AF REC PAUSE | PB | PB PAUSE | ×2 | CUE | REV |
|--------|-----|-----------|-----------|----|-----|--------|---------|-----|-----------|--------|--------------|----|----------|----|-----|-----|
| SIGNAL | I/O | Pin No. | | | | | | | | | | | | | | |
| RF PK | I | IC001⑥Pin | Unsettled | | | | | | | | | | | | | |
| STID | I | IC001⑥Pin | Unsettled | | | | | | | | | | | | | |

3-14. SYSTEM CONTROL – HEAD CHANGE BLOCK INTERFACE

| MODE | | | STOP | FF | REW | SEARCH | –SEARCH | REC | REC PAUSE | AF REC | AF REC PAUSE | PB | PB PAUSE | ×2 | CUE | REV |
|--------|-----|-----------|---------------------------|----|-----|--------|---------|-----|-----------|--------|--------------|----|----------|----|-----|-----|
| SIGNAL | I/O | Pin No. | | | | | | | | | | | | | | |
| AUTO | O | IC001③Pin | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| LAMP | O | IC003⑩Pin | H | H | H | H | H | H | H | H | H | H | H | H | H | H |
| SP/LP | O | IC001⑤Pin | Be caused by speed select | | | | | | | | | | | | | |

3-15. SYSTEM CONTROL – AND OTHERS BLOCK INTERFACE

| MODE | | | STOP | FF | REW | SEARCH | —SEARCH | REC | REC PAUSE | AF REC | AF REC PAUSE | PB | PB PAUSE | ×2 | CUE | REV |
|------------|-----|------------|-----------|----|-----|--------|---------|-----|-----------|--------|--------------|-----|-----------|-----|-----|-----|
| SIGNAL | I/O | Pin No. | | | | | | | | | | | | | | |
| M ATF LOCK | O | iIC002⑤Pin | Unsettled | | | | | | | | | | | | | |
| CAP FG | I | IC001⑩Pin | Unsettled | | | * 1 | * 1 | * 1 | Unsettled | * 1 | Unsettled | * 1 | Unsettled | * 1 | * 1 | * 1 |
| JOG | O | IC001⑨Pin | L | L | L | L | L | L | L | H | H | L | H | H | H | H |

*1 Input pulse

3-16. SYSTEM CONTROL – AFM AUDIO BLOCK INTERFACE

| MODE | | | STOP | FF | REW | SEARCH | —SEARCH | REC | REC PAUSE | AF REC | AF REC PAUSE | PB | PB PAUSE | ×2 | CUE | REV |
|------------|-----|-----------|---------------------------------------------------------------------------------------------------------|----|-----|--------|---------|-----|-----------|--------|--------------|----|----------|----|-----|-----|
| SIGNAL | I/O | Pin No. | | | | | | | | | | | | | | |
| IN SEL A | O | IC101⑤Pin | Be caused by input select (TUNER/LINE/SIMUL and yes or no of microphone input) | | | | | | | | | | | | | |
| IN SEL B | O | IC101⑥Pin | | | | | | | | | | | | | | |
| AF SEL | O | IC101⑤Pin | | | | | | | | | | | | | | |
| MUTE R | O | IC101③Pin | Be caused by output select (receive a signal or STEREO/MONO/BILINGAL of playback ID and monitor switch) | | | | | | | | | | | | | |
| MUTE L | O | IC101②Pin | | | | | | | | | | | | | | |
| PB/EE | O | IC101①Pin | | | | | | | | | | | | | | |
| SP/LP | O | IC101⑦Pin | Be caused by speed select | | | | | | | | | | | | | |
| AUDIO MUTE | O | IC101④Pin | H | H | H | L | L | H | H | H | H | H | L | H | H | H |
| AF PB/REC | O | IC101⑤Pin | L | L | L | H | H | L | L | | L | H | H | H | H | H |
| REC MUTE | O | IC101④Pin | H | H | H | H | H | L | H | L | H | H | H | H | H | H |
| AFM MUTE 1 | O | IC101②Pin | *1 | *1 | *1 | H | H | *1 | *1 | H | H | *2 | H | *2 | H | H |
| ×2 | O | IC101⑩Pin | L | L | L | L | L | L | L | L | L | L | L | H | L | L |

*1 Be caused by the air classify of STEREO/MONO/BILINGUAL and monitor switch

*2 Be caused by Tape ID and monitor switch

3-17. SYSTEM CONTROL—PCM AUDIO BLOCK INTERFACE

| MODE | | | STOP | FF | REW | SEARCH | —SEARCH | REC | REC PAUSE | AF REC | AF REC PAUSE | PB | PB PAUSE | ×2 | CUE | REV |
|------------|-----|-------------------------|------|----|-----|-----------|---------|-----|-----------|--------|--------------|-----------|----------|----|-----|-----|
| SIGNAL | I/O | Pin No. | | | | | | | | | | | | | | |
| PCM ACT | I | IC500 ^{④⑥} Pin | L | L | L | Unsettled | | H | L | H | L | Unsettled | | | | |
| AF REC | O | IC500 ^{⑤⑨} Pin | L | L | L | L | L | L | L | H | L | L | L | L | L | L |
| PCM PB/REC | O | IC500 ^{⑫②} Pin | H | H | H | H | H | L | H | L | H | H | H | H | H | H |
| LOCK | O | IC500 ^{⑫②} Pin | L | L | L | H | H | H | L | H | H | H | H | H | H | H |
| FOH | O | IC500 ^{⑬③} Pin | H | H | H | L | H | H | H | H | H | H | H | H | H | H |
| FOL | O | IC500 ^{⑭④} Pin | L | L | L | L | H | L | L | L | L | L | L | L | L | L |

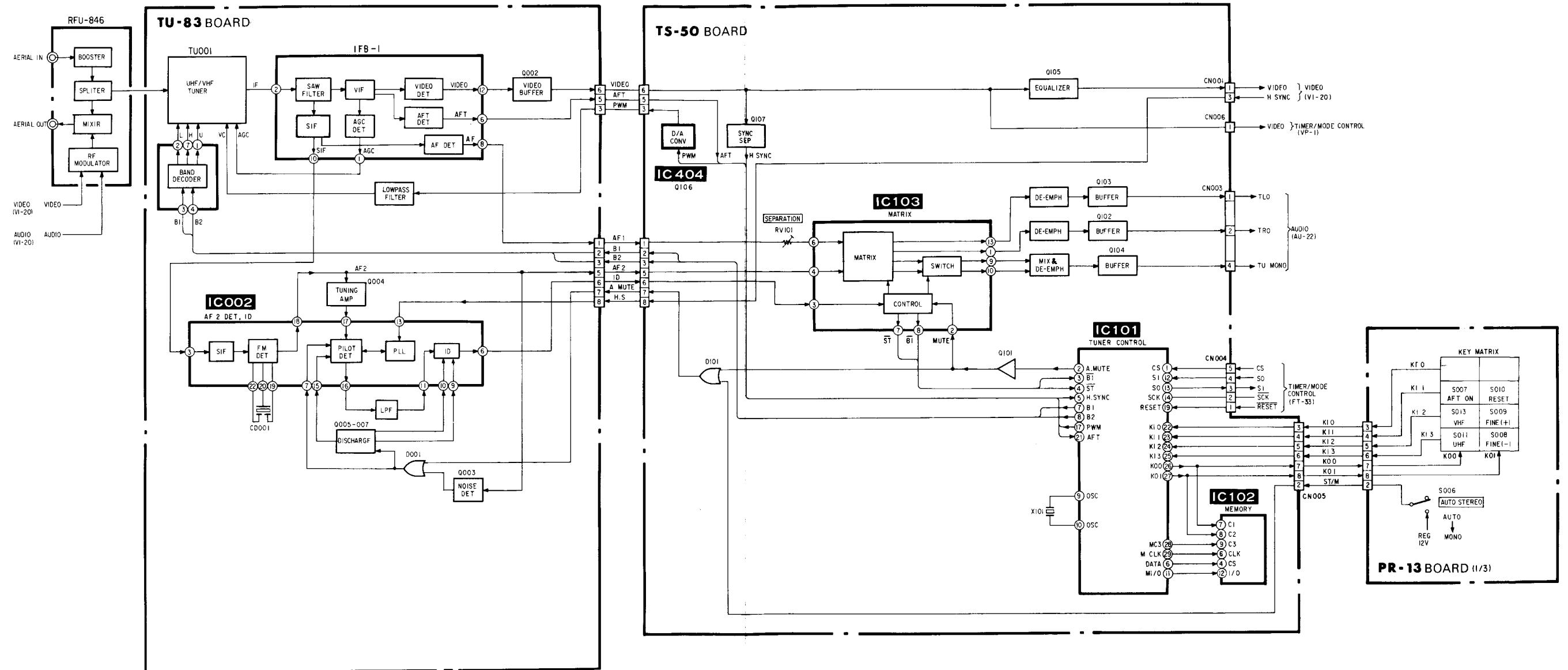
3-18. SYSTEM CONTROL—MD BLOCK INTERFACE

| SIGNAL | MODE | | STOP | FF | REW | SEARCH | —SEARCH | REC | REC PAUSE | AF REC | AF REC PAUSE | PB | PB PAUSE | ×2 | CUE | REV |
|---------------|------|---------------------------|-------------------------|-----|-----|--------|---------|-----|-----------|--------|--------------|-----|-----------|-----|-----|-----|
| | I/O | Pin No. | | | | | | | | | | | | | | |
| LAMP | O | IC003 ^{①⑦} Pin | H | H | H | H | H | H | H | H | H | H | H | H | H | H |
| CDOWNL | I | IC002 ^{④⑦} Pin | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| CDOWNR | I | IC002 ^{④⑧} Pin | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| LSTOP | I | IC002 ^{④⑨} Pin | H | H | H | H | H | H | H | H | H | H | H | H | H | H |
| OPEN | O | IC003 ^{⑧⑧} Pin | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| CLOSE | O | IC002 ^{⑨⑨} Pin | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| LOAD | O | IC002 ^{⑥⑥} Pin | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| UNLOAD | O | IC002 ^{⑦⑦} Pin | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| LA ~ LC | I | IC003 ^{⑩①②③} Pin | "3" | "3" | "3" | "3" | "3" | "3" | "3" | "3" | "3" | "3" | "3" | "3" | "3" | "3" |
| CONTL | O | IC002 ^{⑩⑩} Pin | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| CONTR | O | IC002 ^{⑪⑪} Pin | L | L | L | L | L | L | L | L | L | L | L | L | L | L |
| MA ~ MC | I | IC002 ^{⑫⑬⑭} Pin | "3" | "6" | "6" | "1" | "1" | "1" | "1" | "1" | "1" | "1" | "1" | "1" | "1" | "1" |
| START | O | IC002 ^{⑫⑫} Pin | H | H | H | H | H | H | H | H | H | H | H | H | H | H |
| HOLD | O | IC002 ^{⑬⑬} Pin | H | L | L | H | H | H | H | H | H | H | H | H | H | H |
| RECPROOF | I | IC003 ^{⑥⑩} Pin | Be caused be Tape state | | | | | | | | | | | | | |
| TAPE 2/TAPE 2 | I | IC003 ^{⑥⑪} Pin | | | | | | | | | | | | | | |
| T10/T13 | I | IC003 ^{⑥⑫} Pin | | | | | | | | | | | | | | |
| TFG1 | I | IC003 ^{⑩④} Pin | Unsettled | *1 | *1 | *1 | *1 | *1 | Unsettled | *1 | Unsettled | *1 | Unsettled | *1 | *1 | *1 |
| TFG2 | I | IC003 ^{⑩⑤} Pin | Unsettled | *1 | *1 | *1 | *1 | *1 | Unsettled | *1 | Unsettled | *1 | Unsettled | *1 | *1 | *1 |
| TOP | I | IC002 ^{⑤④} Pin | H | H | H | H | H | H | H | H | H | H | H | H | H | H |
| END | I | IC002 ^{⑤⑤} Pin | *2 | L | L | L | L | L | L | L | L | L | L | L | L | L |
| SFG | I | IC003 ^{⑩③} Pin | Unsettled | *1 | *1 | *1 | *1 | *1 | Unsettled | *1 | Unsettled | *1 | Unsettled | *1 | *1 | *1 |

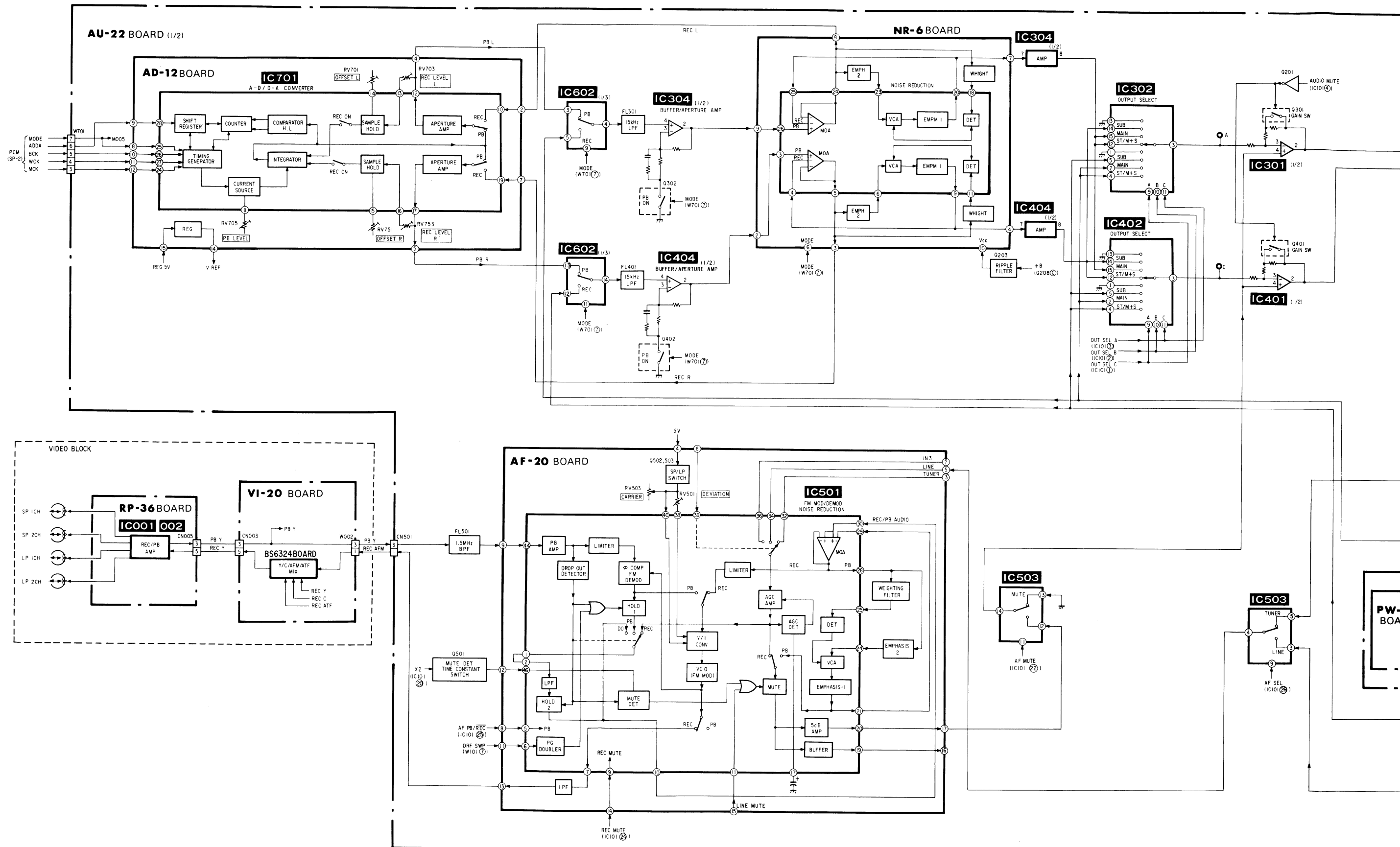
*1 The pulse is participate of reel rotations

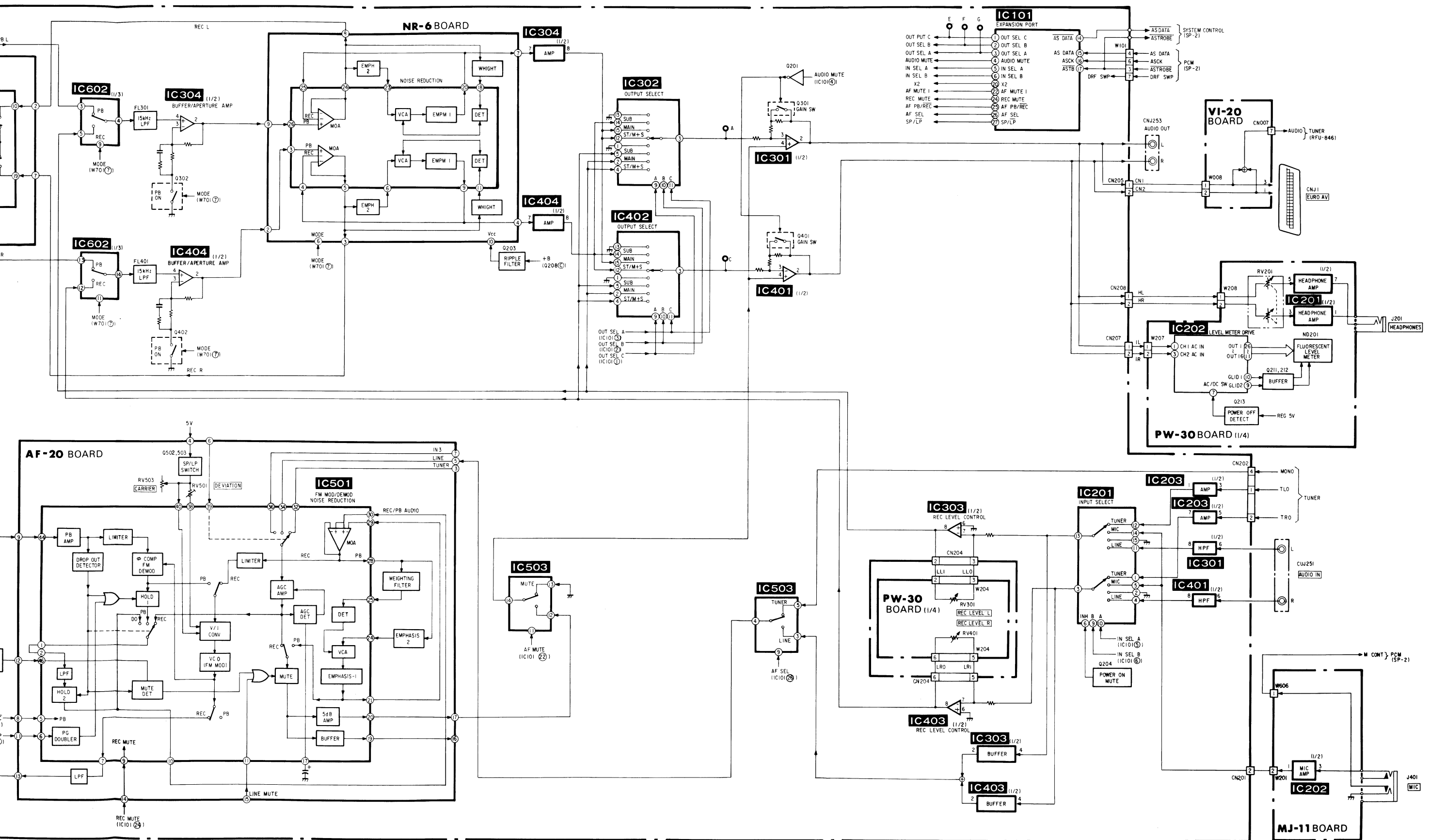
*2 Normal...at "H", but at "L" during the Tape end

3-19. TUNER BLOCK DIAGRAM

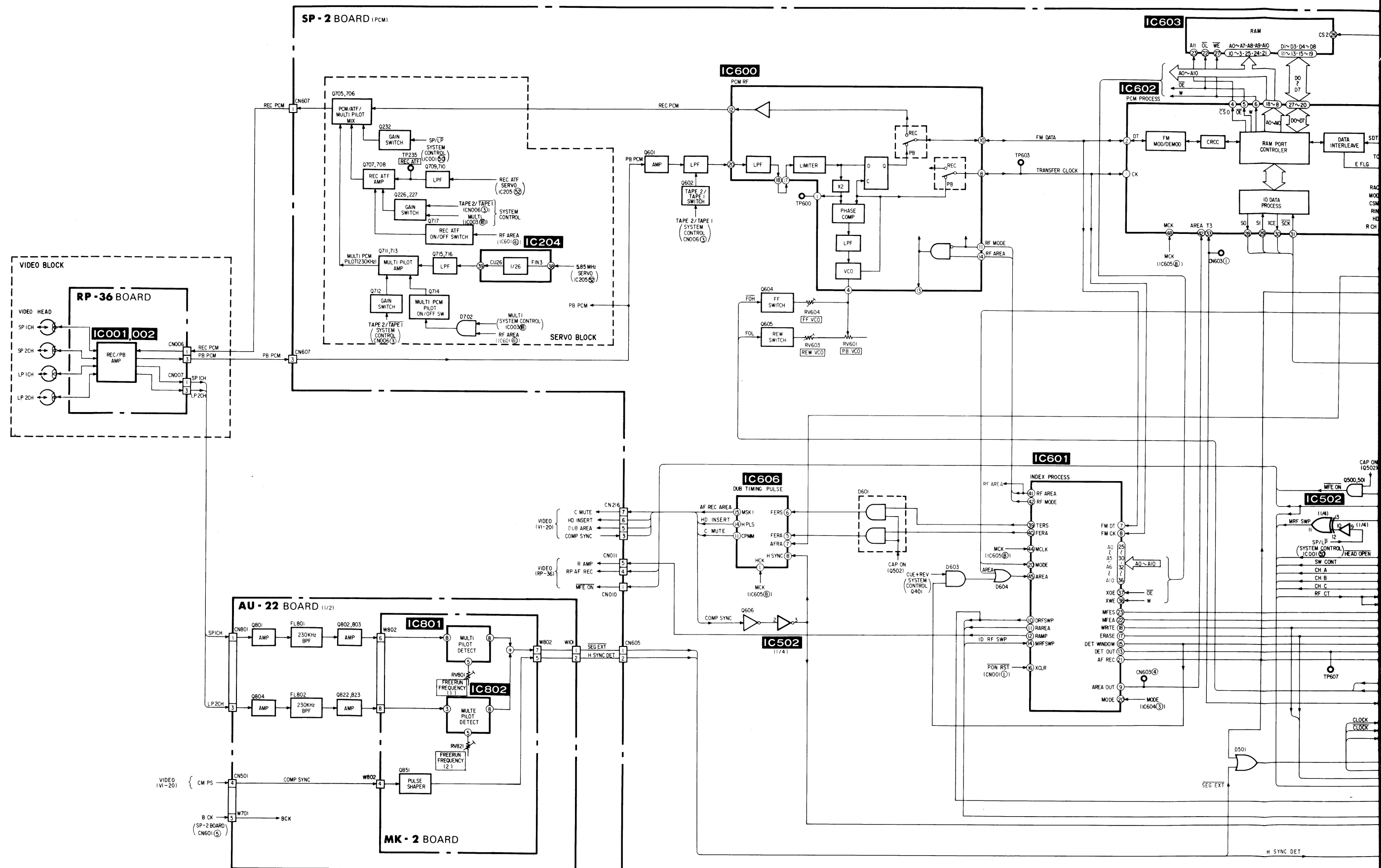


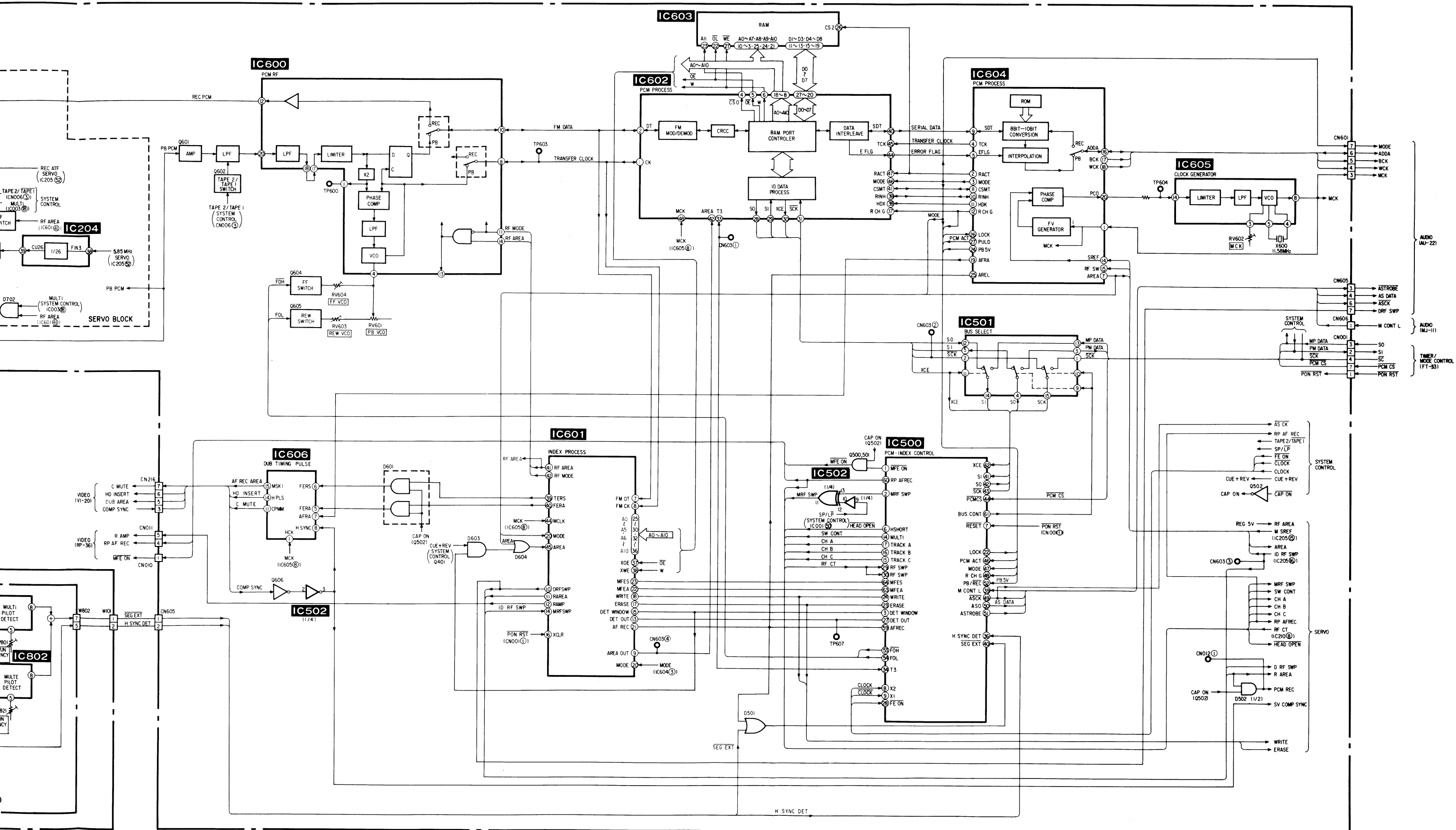
3-20. AUDIO BLOCK DIAGRAM



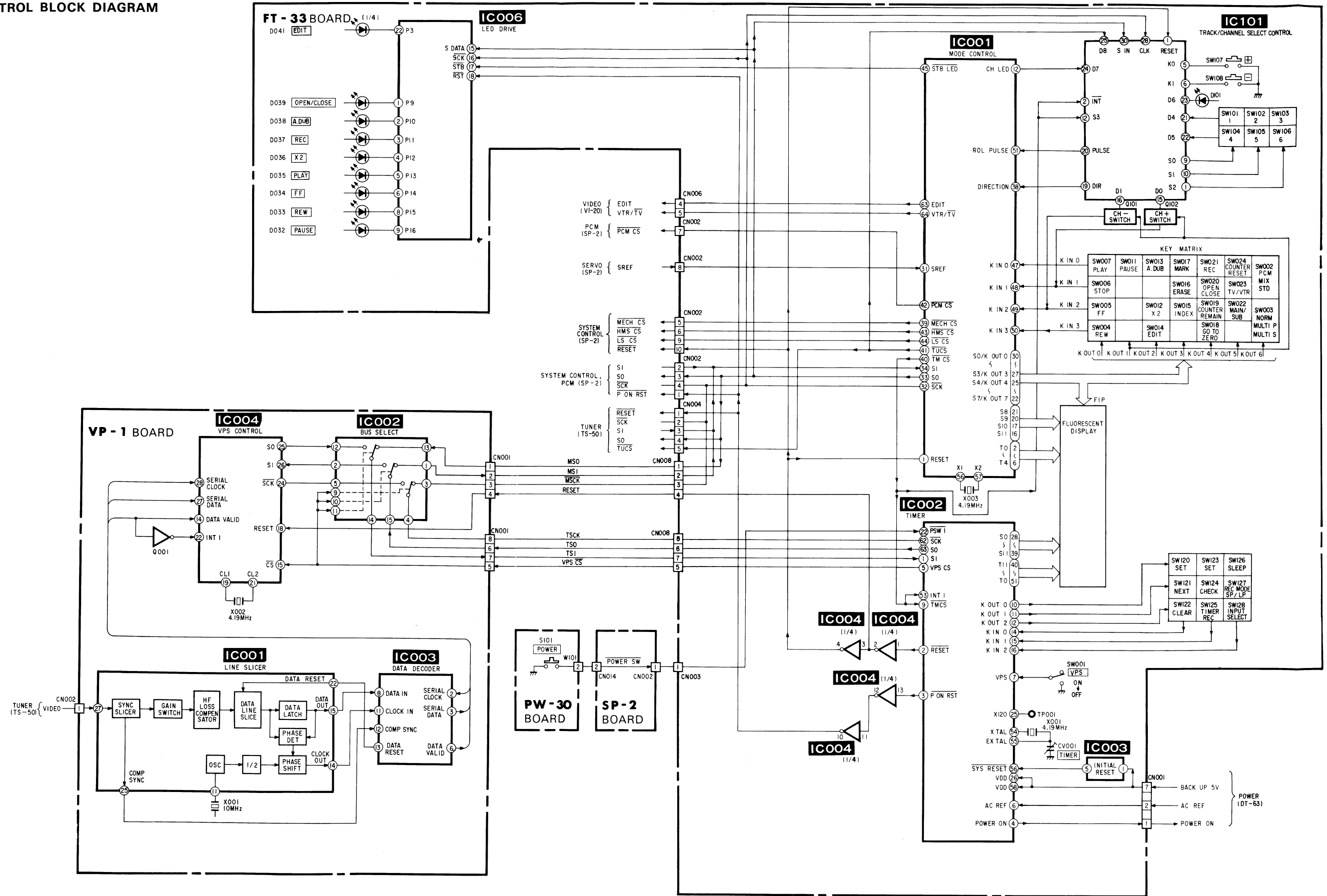


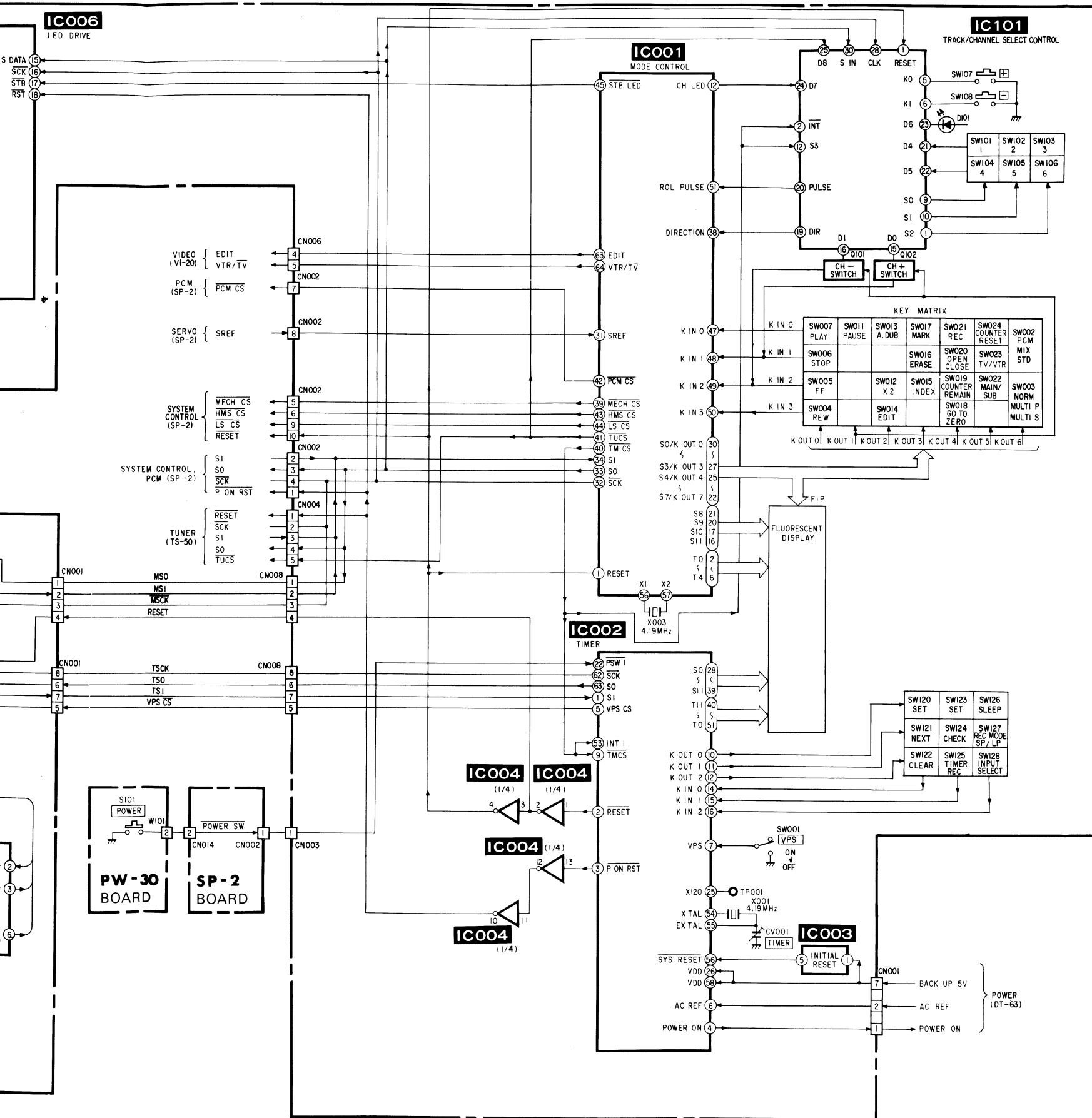
3-21. PCM AUDIO BLOCK DIAGRAM



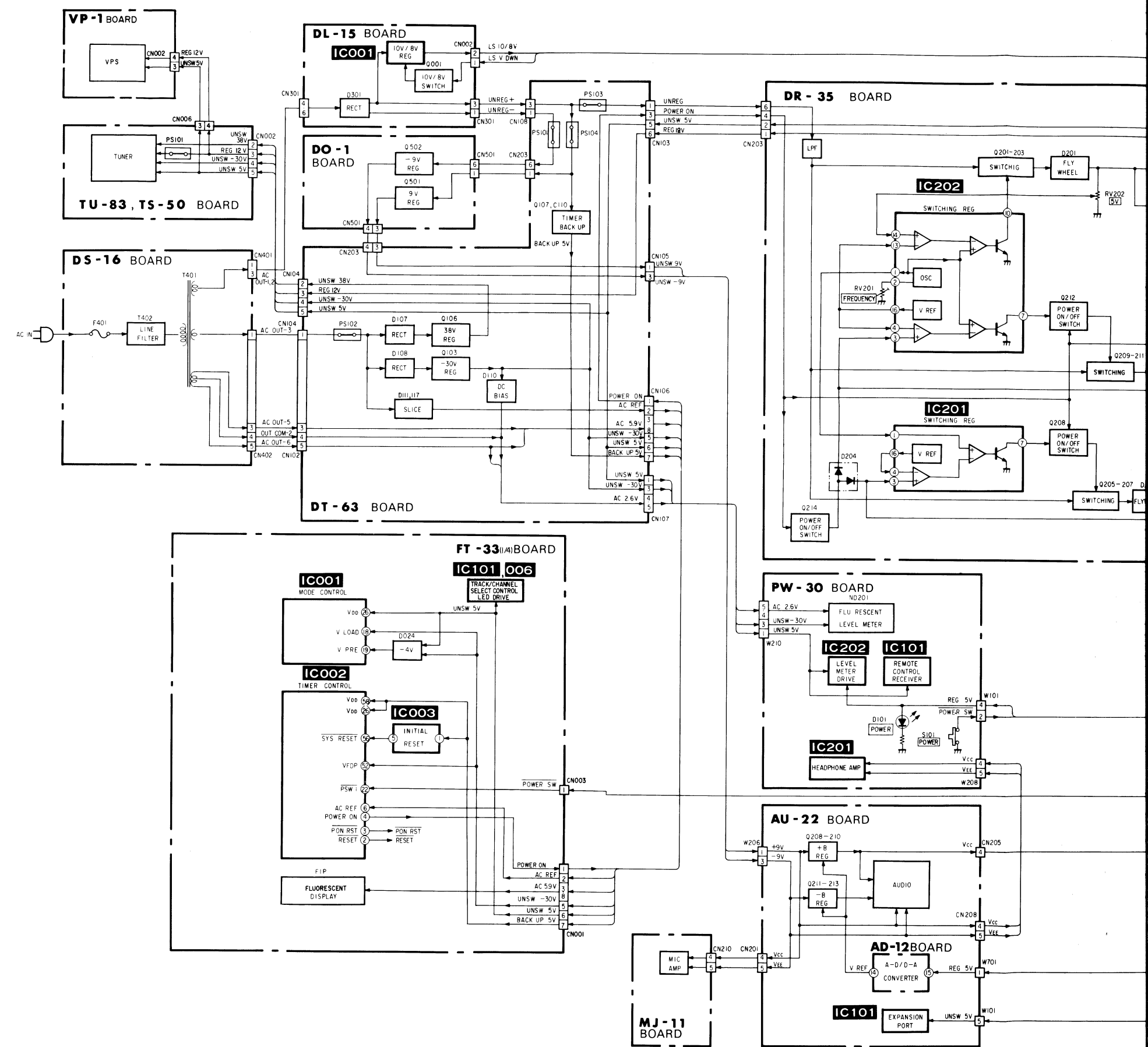


3-22. TIMER/MODE CONTROL BLOCK DIAGRAM



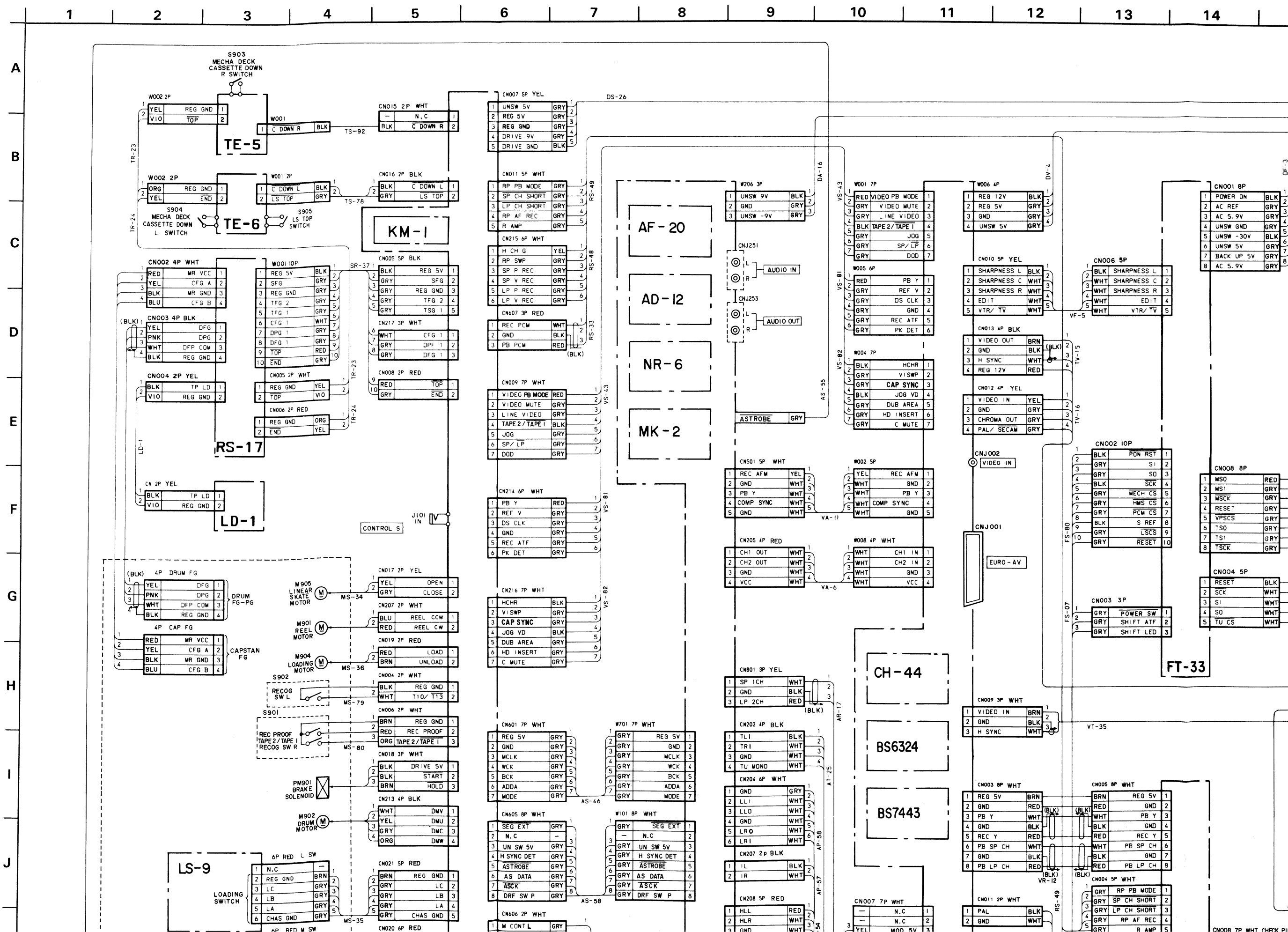


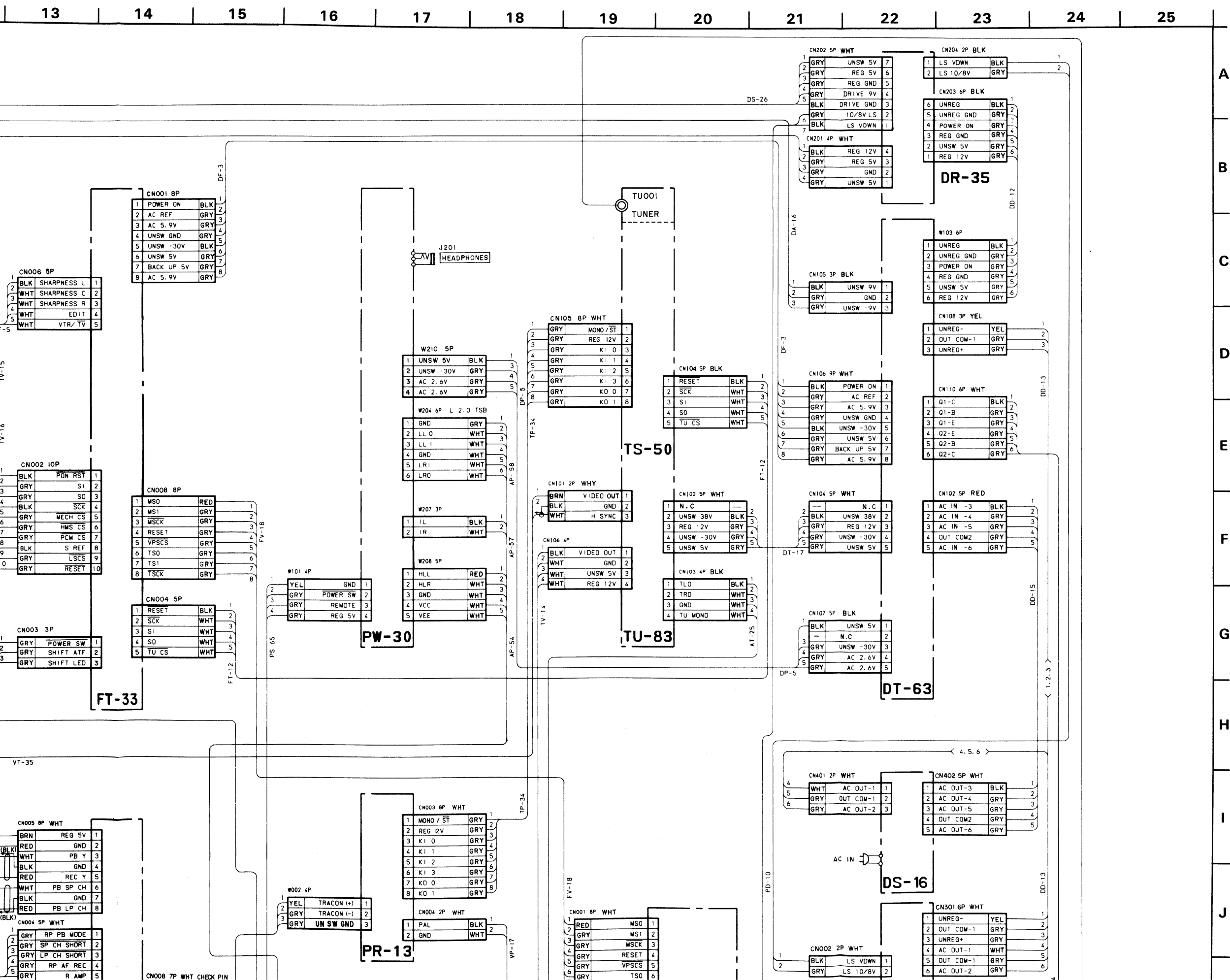
3-23. POWER BLOCK DIAGRAM



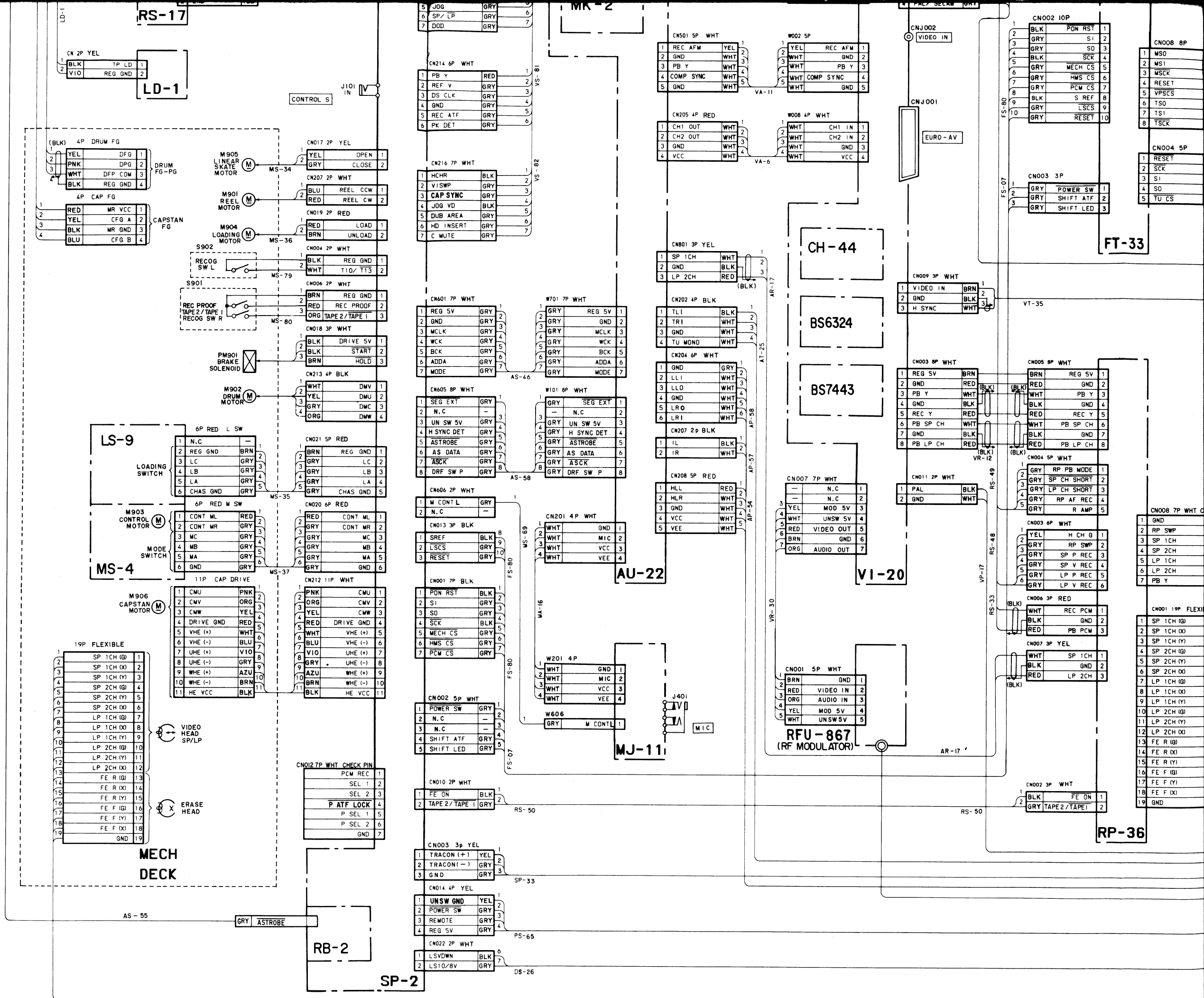
SECTION 4 PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

4-1. FRAME SCHEMATIC DIAGRAM





F
G
H
I
J
K
L
M
N
O
P



4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

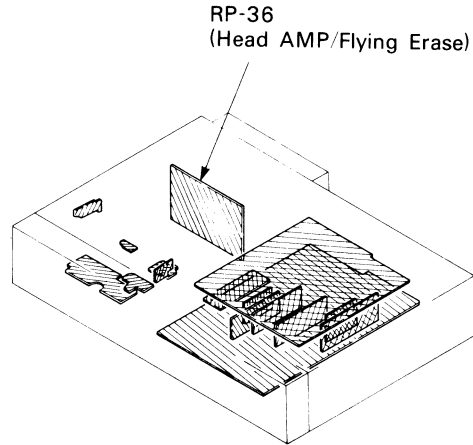
Note:

- : indicates a lead wire mounted on the component side.
 - : indicates a lead wire mounted on the printed side.
 - ⊗ : Through hole.
 - : Pattern from the side which enables seeing.
 - : Pattern of the rear side.
 - Digital transistor (RP-36:Q103,Q105,Q203,Q302,Q303) transistor with resistors.
- Refer to the RP-36 board schematic diagram for digital transistor

When indicating parts by reference number, please include the board name.

Caution:

Pattern face side: Parts on the pattern face side seen from (Solder Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

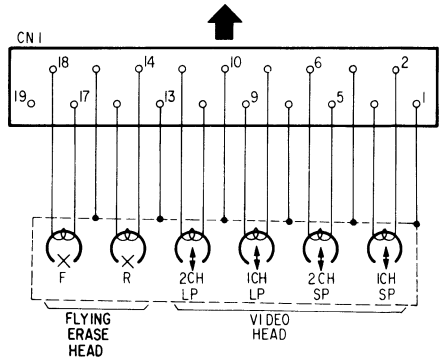
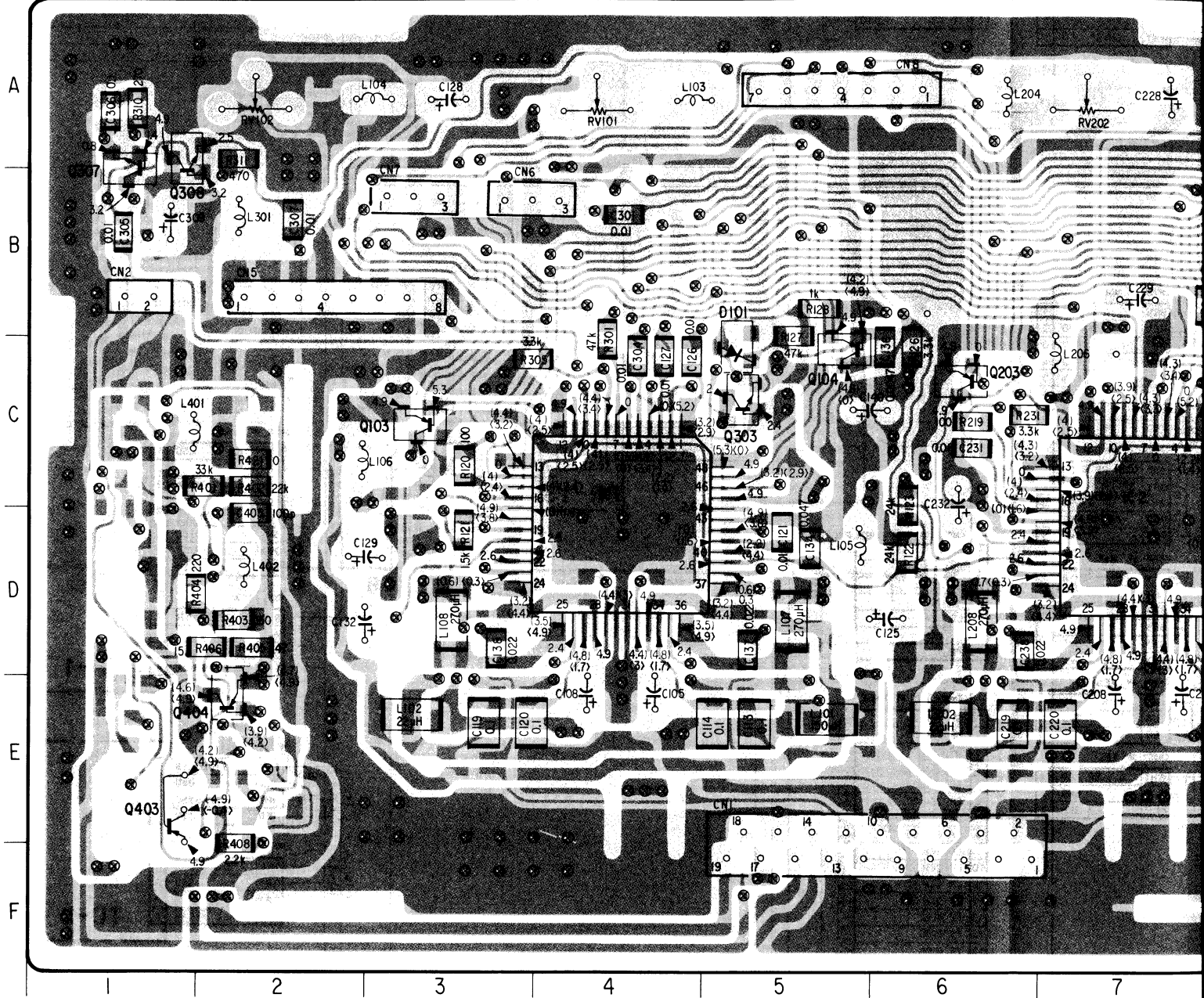


RP-36 (HEAD AMP/FLYING ERASE) PRINTED WIRING BOARD

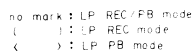
—Ref. No. RP-36 BOARD : 1,000 series—

RP-36 BOARD (COMPONENT SIDE)



| | |
|-------|------|
| D101 | C-5 |
| IC001 | C-4 |
| IC002 | C-7 |
| Q101 | E-15 |
| Q102 | E-17 |
| Q103 | C-3 |
| Q104 | C-5 |
| Q105 | C-15 |
| Q201 | E-11 |
| Q202 | E-14 |
| Q203 | C-6 |
| Q301 | C-11 |
| Q302 | B-8 |
| Q303 | C-5 |
| Q304 | C-8 |
| Q307 | A-1 |
| Q308 | A-1 |
| Q402 | D-18 |
| Q403 | E-1 |
| Q404 | E-2 |
| RV101 | A-4 |
| RV102 | A-2 |
| RV201 | A-8 |
| RV202 | A-7 |







Note:

- **Cautions when replacing chip parts.**
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- **All resistors are in ohms, 1/10W unless otherwise noted.**
k Ω : 1000 Ω , M Ω : 1000k Ω .
- **All capacitors are in μ F unless otherwise noted. pF : μ μ F.**
50V or less are not indicated except for electrolytic. and tantalums.
- **All variable and adjustable resistors have characteristic curve B, unless otherwise noted.**
-  : adjustment for repair.
-  : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production tolerances.

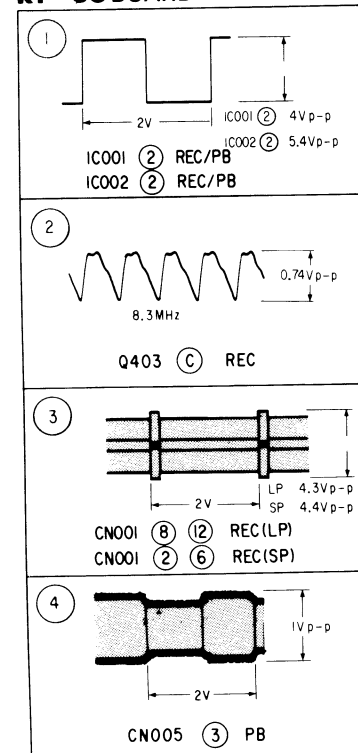
When indicating parts by reference number, please include the board name.

D

- **Signal path**
 - REC Y/CHROMA Signal
 - PB Y/CHROMA Signal

E

RP-36 BOARD



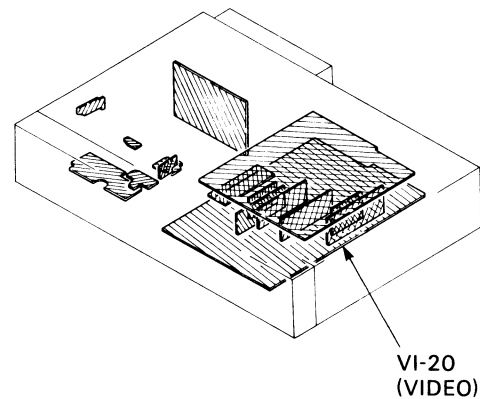
VI-20 (VIDEO) PRINTED WIRING BOARD
—Ref. No. VI-20 BOARD : 2,000 series—

VI-20BOARD

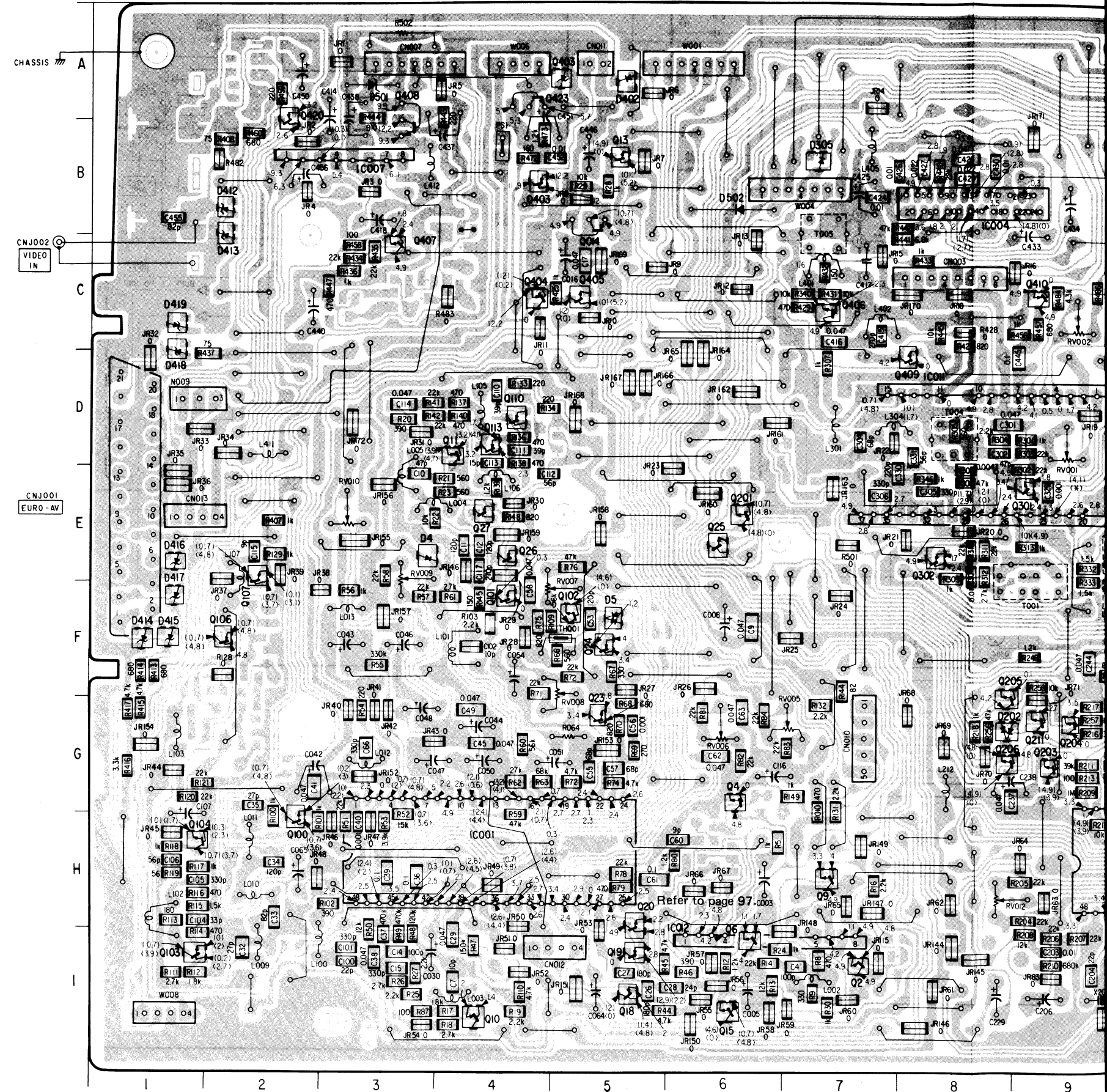
Note:

- — : indicates a lead wire mounted on the component side.
 - — : indicates a lead wire mounted on the printed side.
 - : soldering side.
 - Digital transistor (VI-20: Q002, Q004, Q013, Q015, Q025, Q026, Q101, Q102, Q106, Q201, Q202, Q203, Q204, Q205, Q206, Q211, Q219, Q304, Q403, Q404, Q405, Q409, Q410) transistor with resistors.
- Refer to the VI-20 board schematic diagram for digital transistor.

When indicating parts by reference number, please include the board name.



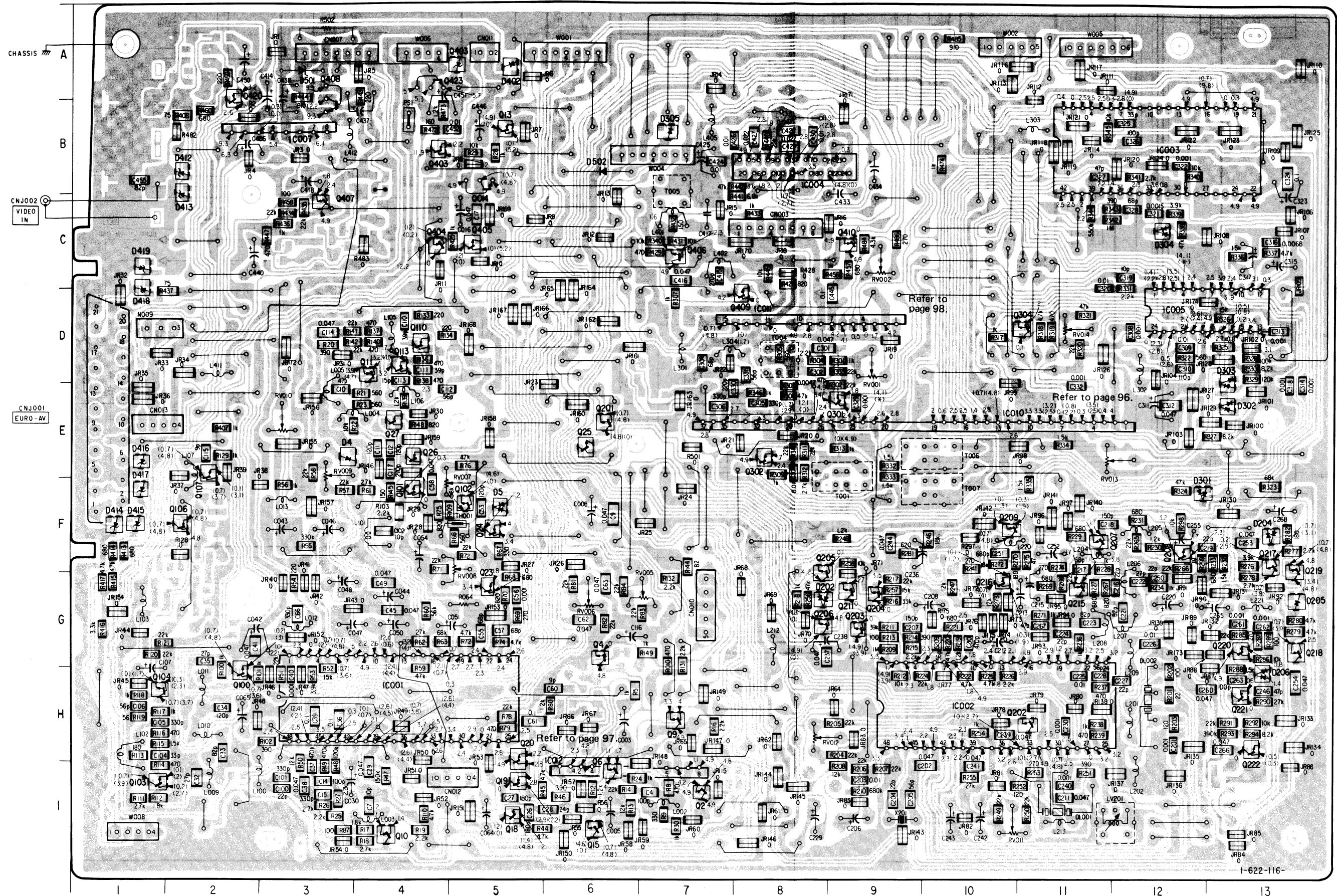
| | | | |
|-------|------|-------|------|
| D004 | E-3 | Q101 | F-4 |
| D005 | F-5 | Q102 | F-5 |
| D202 | G-8 | Q103 | I-1 |
| D204 | F-13 | Q104 | H-1 |
| D205 | G-13 | Q106 | F-2 |
| D206 | H-13 | Q107 | E-2 |
| D301 | F-12 | Q110 | D-4 |
| D302 | E-13 | Q113 | D-4 |
| D303 | D-13 | Q201 | E-6 |
| D304 | C-12 | Q202 | H-11 |
| D305 | B-7 | Q203 | G-9 |
| D402 | A-5 | Q204 | G-9 |
| D403 | A-5 | Q205 | F-8 |
| D410 | A-2 | Q206 | G-8 |
| D411 | A-2 | Q207 | F-11 |
| D412 | B-2 | Q208 | F-12 |
| D413 | C-1 | Q209 | F-10 |
| D414 | F-1 | Q211 | G-9 |
| D415 | F-1 | Q215 | G-11 |
| D416 | E-1 | Q216 | G-10 |
| D417 | F-1 | Q217 | F-13 |
| D418 | D-1 | Q218 | G-13 |
| D419 | C-1 | Q219 | F-13 |
| D501 | A-3 | Q220 | G-13 |
| D502 | D-6 | Q221 | H-13 |
| | | Q222 | H-13 |
| IC001 | H-4 | Q301 | E-9 |
| IC002 | H-10 | Q302 | E-8 |
| IC003 | B-12 | Q304 | D-11 |
| IC004 | B-8 | Q403 | B-4 |
| IC005 | D-12 | Q404 | C-4 |
| IC007 | B-3 | Q405 | C-5 |
| IC010 | E-10 | Q406 | C-7 |
| IC011 | D-8 | Q407 | C-3 |
| IC012 | I-6 | Q408 | A-3 |
| | | Q409 | D-8 |
| | | Q410 | C-9 |
| | | Q420 | A-2 |
| | | Q423 | A-4 |
| LV201 | I-12 | | |
| Q002 | I-7 | RV001 | D-9 |
| Q004 | G-6 | RV002 | C-9 |
| Q006 | I-6 | RV005 | G-7 |
| Q009 | H-7 | RV006 | G-6 |
| Q010 | I-4 | RV007 | F-4 |
| Q011 | D-4 | RV008 | F-5 |
| Q013 | B-5 | RV009 | E-3 |
| Q014 | B-5 | RV010 | E-3 |
| Q015 | I-6 | RV011 | I-10 |
| Q018 | I-5 | RV012 | H-8 |
| Q019 | I-5 | RV013 | E-11 |
| Q020 | H-5 | RV014 | D-11 |
| Q023 | G-5 | | |
| Q024 | F-5 | | |
| Q025 | E-6 | | |
| Q026 | E-4 | | |
| Q027 | E-4 | | |
| Q100 | H-2 | | |



VI-20 (VIDEO) PRINTED WIRING BOARD

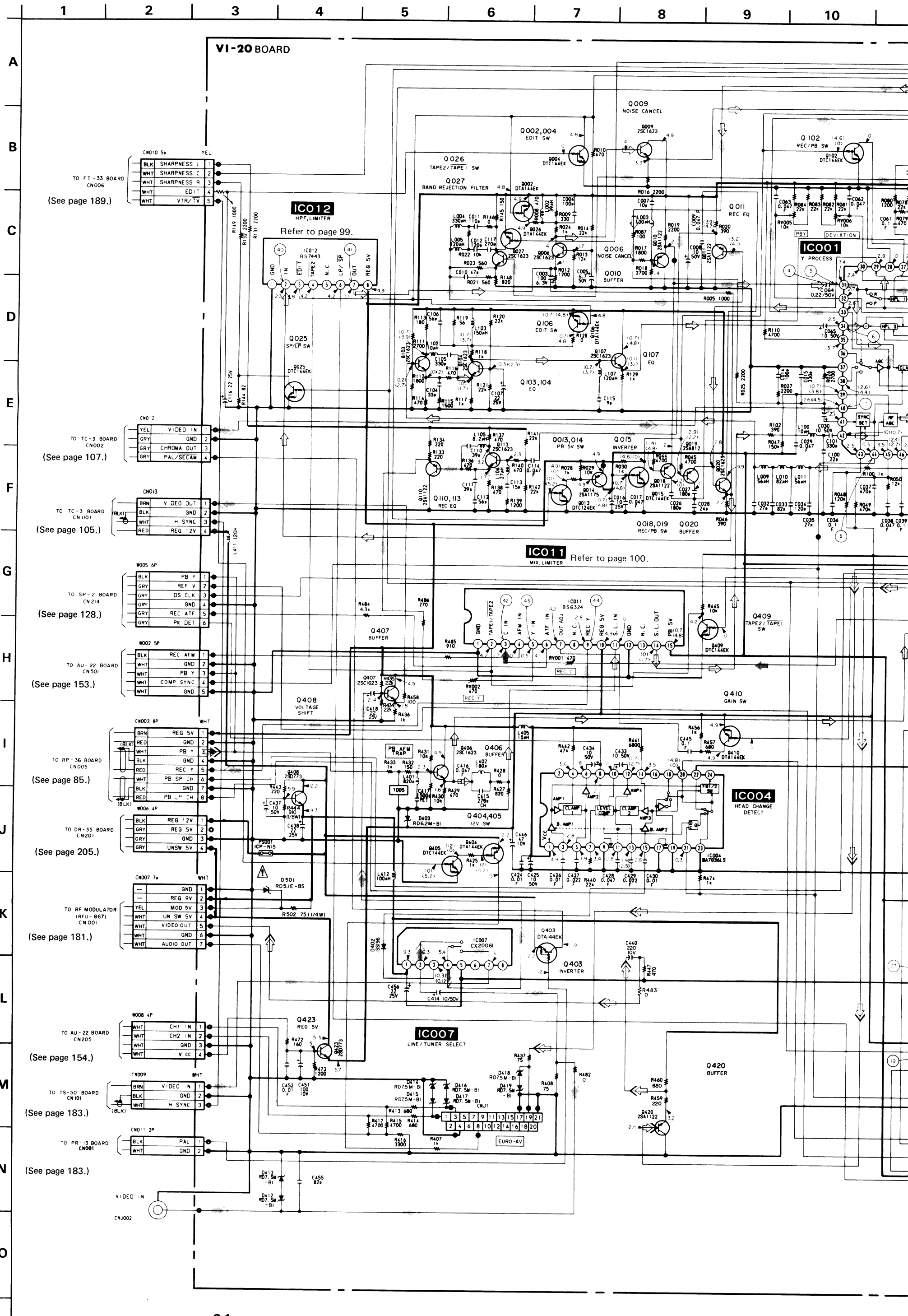
—Ref. No. VI-20 BOARD : 2,000 series—

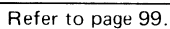
VI-20BOARD



no mark : L.P. REL. / P.B. mode
 1 : L.P. REL. mode
 2 : L.P. P.B. mode
 Marked * is not able to measure
 the voltage of its position.

VI-20 (VIDEO) SCHEMATIC DIAGRAM
 —Ref. No. VI-20 BOARD : 2,000 series—







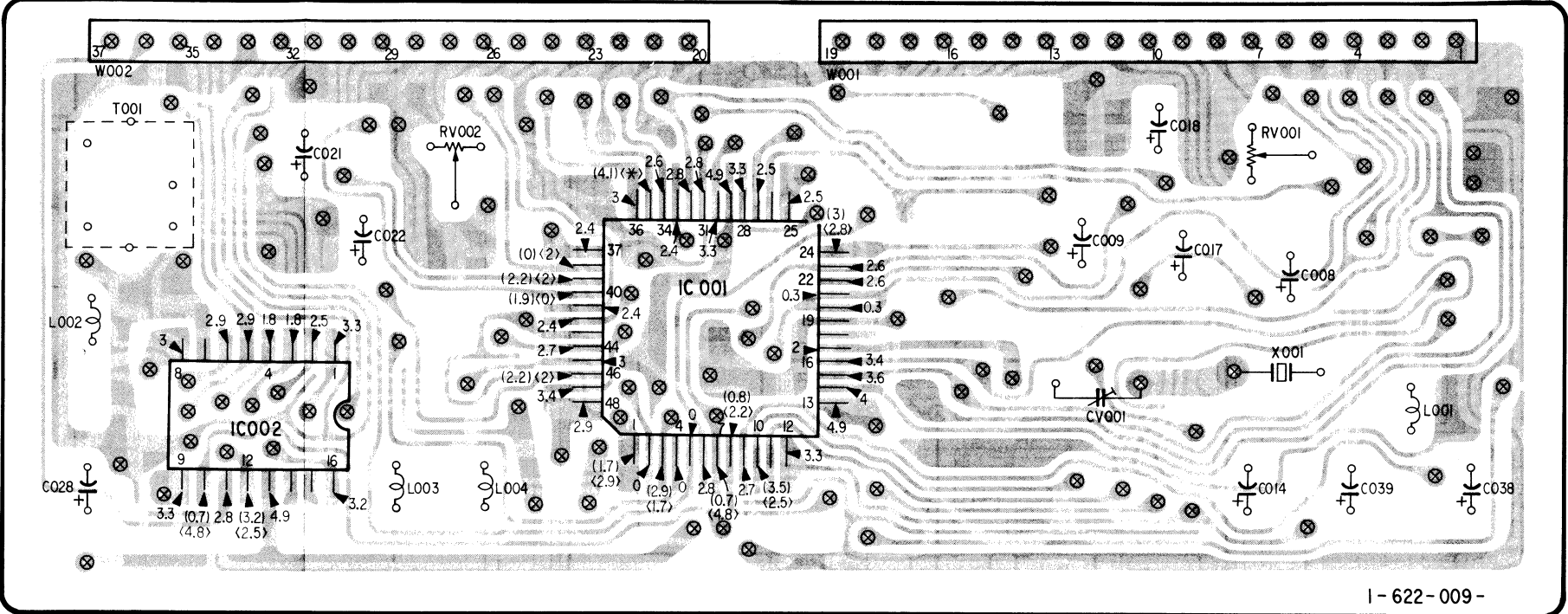
—94—

CH-44 (CHROMA PROCESS), BS6324(MIX), BS7443(NOISE CANCEL) PRINTED WIRING BOARDS

—Ref. No. CH-44 BOARD : 3, 000 series, BS6324 BOARD : 3, 100 series, BS7443 BOARD : 3, 200 series—

ICO10

CH-44 BOARD (COMPONENT SIDE)



I-622-009-

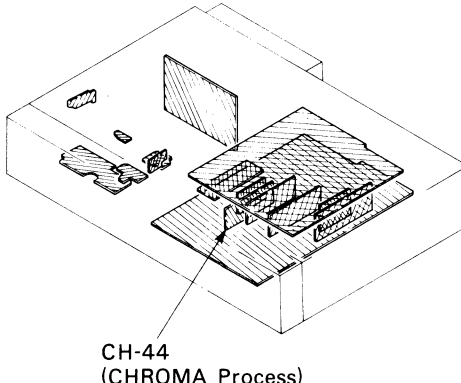
II

no mark: LP REC/PB mode
(): LP REC mode
< >: LP PB mode
Markd * is not able to measure the voltage of its position

- Note:**
- : indicates a lead wire mounted on the component side.
 - : indicates a lead wire mounted on the printed side.
 - ⊗ : Through hole.
 - ⊙ : Pattern from the side which enables seeing.
 - ⊙ : Pattern on the rear side.
- Digital transistor (BS7443:DT001,DT002,DT003,DT004,DT005 DT006, BS6324:DT001) transistor with resistors.
Refer to the BS7443,BS6324 boards schematic diagram for digital transistor.

When indicating parts by reference number, please include the board name.

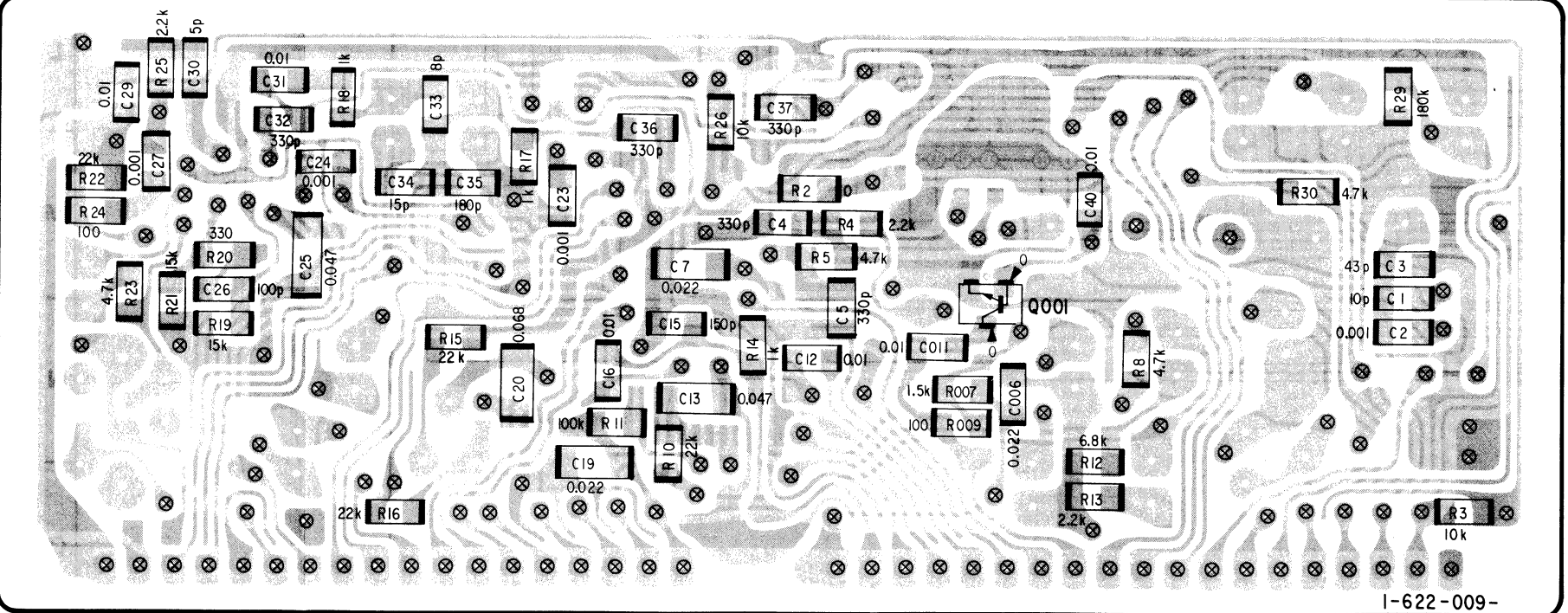
Caution:
Pattern face side: Parts on the pattern face side seen from (Solder Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.



CH-44 (CHROMA Process)

ICO10

CH-44 BOARD (SOLDER SIDE)

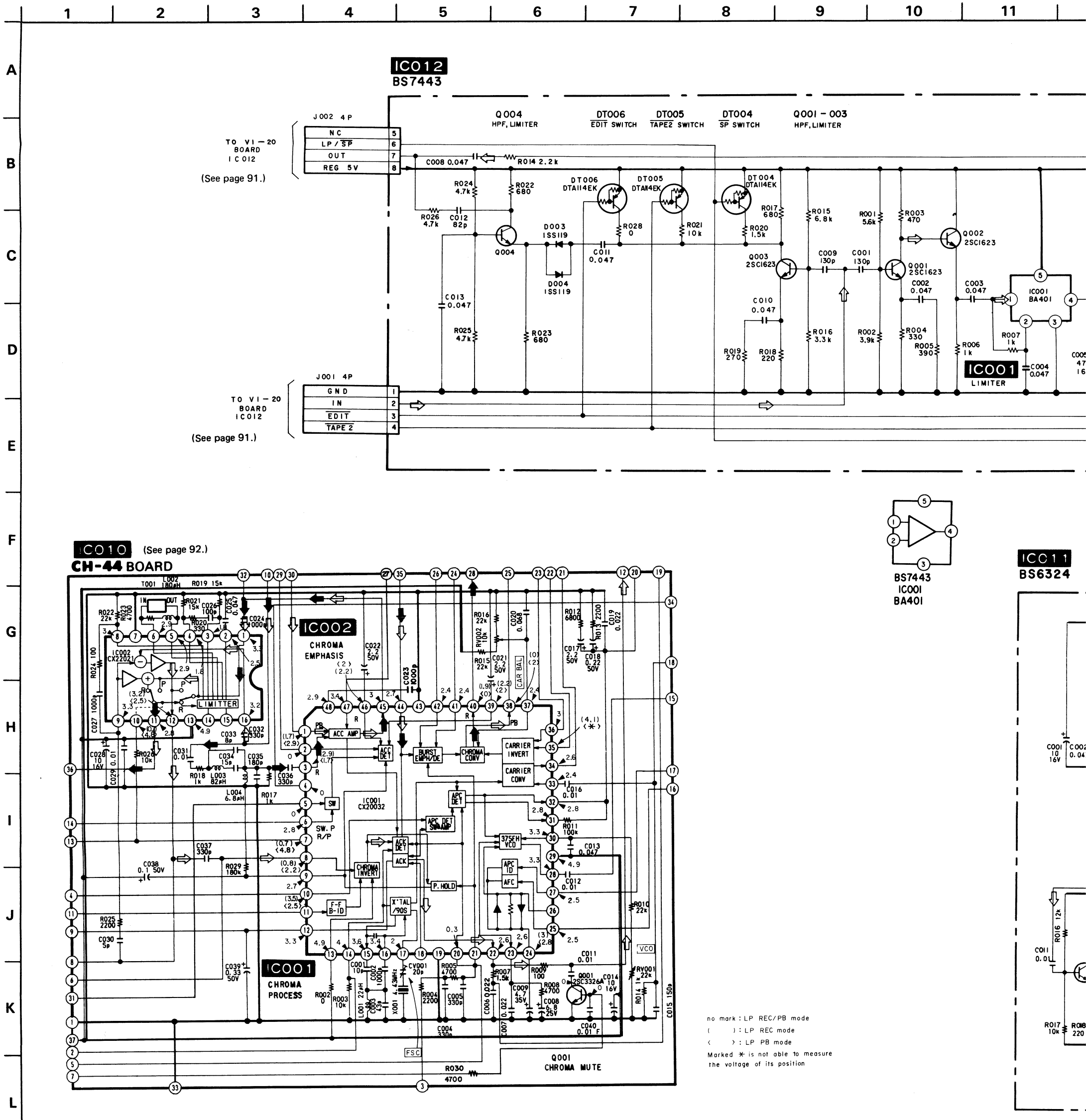


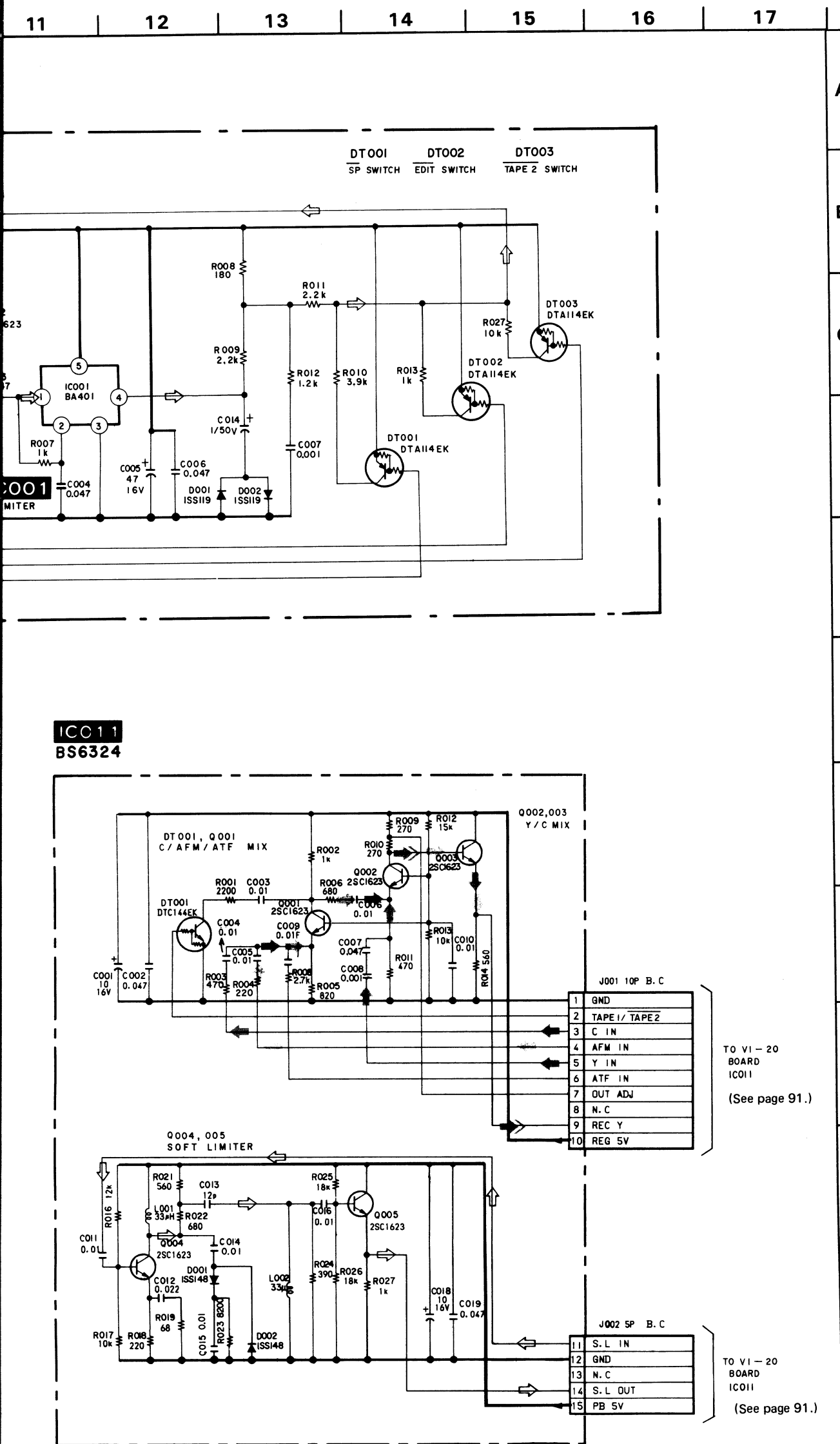
I-622-009-

II

CH-44 (CHROMA PROCESS), BS6324(MIX), BS7443(Noise Cancel) SCHEMATIC DIAGRAM

—Ref. No. CH-44 BOARD : 3, 000 series, BS6324 BOARD : 3, 100 series, BS7443 BOARD : 3, 200 series—





Note:

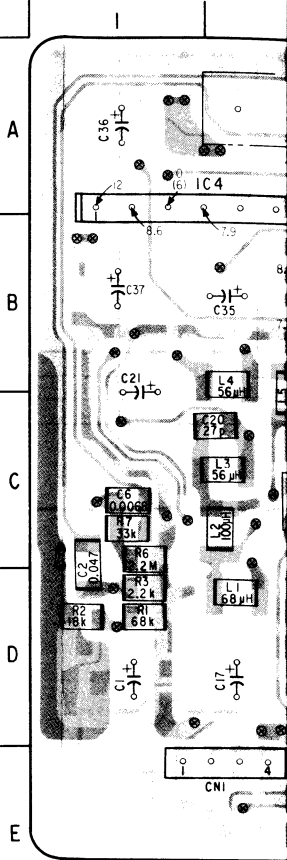
- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF.
50V or less are not indicated except for electrolytic, and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- □ : adjustment for repair.
- — : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

When indicating parts by reference number, please include the board name.

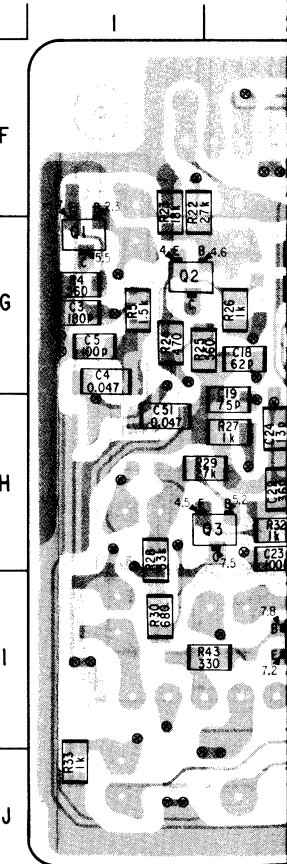
Signal path

- ➡ : REC Y Signal
- ➡ : PB Y Signal
- ➡ : REC CHROMA Signal
- ➡ : PB CHROMA Signal
- ➡ : REC Y/CHROMA Signal

[TC-3 BOARD] (COMPONENT SIDE)



[TC-3 BOARD] (SOLDER SIDE)



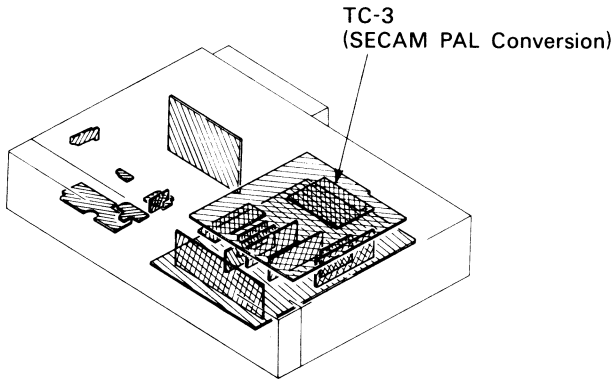
Note:

- — : indicates a lead wire mounted on the component side.
 - — : indicates a lead wire mounted on the printed side.
 - ⊗ : Through hole.
 - : Pattern from the side which enables seeing.
 - : Pattern of the rear side.
 - ⊕ : B+ pattern from the side which enables seeing.
 - : Digital transistor (TC-3:Q007) transistor with resistors.
- Refer to the TC-3 board schematic diagram for digital transistor.

When indicating parts by reference number, please include the board name.

Caution:

Pattern face side: Parts on the pattern face side seen from (Solder Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.



| | |
|-----|---------|
| CV1 | C-3 |
| D1 | D-7 |
| D2 | C-4 |
| IC1 | D-3 |
| IC2 | B-6 |
| IC3 | C-6 |
| IC4 | A-2 |
| LV1 | D-5 |
| LV2 | B-4 |
| LV3 | B-3 |
| Q1 | G-1 |
| Q2 | G-1 |
| Q3 | H-2 |
| Q4 | B-2 |
| Q5 | B-2 |
| Q6 | C-3 |
| Q7 | C-7 |
| Q8 | B-8 |
| Q9 | B-8 |
| Q10 | A-7 |
| Q12 | D-2 |
| RV1 | B-5 |
| RV2 | C-5 |
| RV3 | E-6 |
| RV4 | C-2 |
| RV5 | E-5 |
| RV6 | C-8 |
| RV7 | C-3 |
| TP1 | B-4,1,4 |

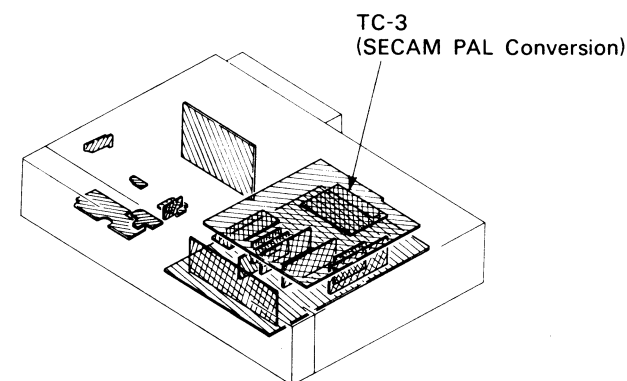
Note:

- — : indicates a lead wire mounted on the component side.
- — : indicates a lead wire mounted on the printed side.
- ⊗ : Through hole.
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.
- : B+ pattern from the side which enables seeing.
- : Digital transistor (TC-3:Q007) transistor with resistors.

When indicating parts by reference number, please include the board name.

Caution:

Pattern face side: Parts on the pattern face side seen from (Solder Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

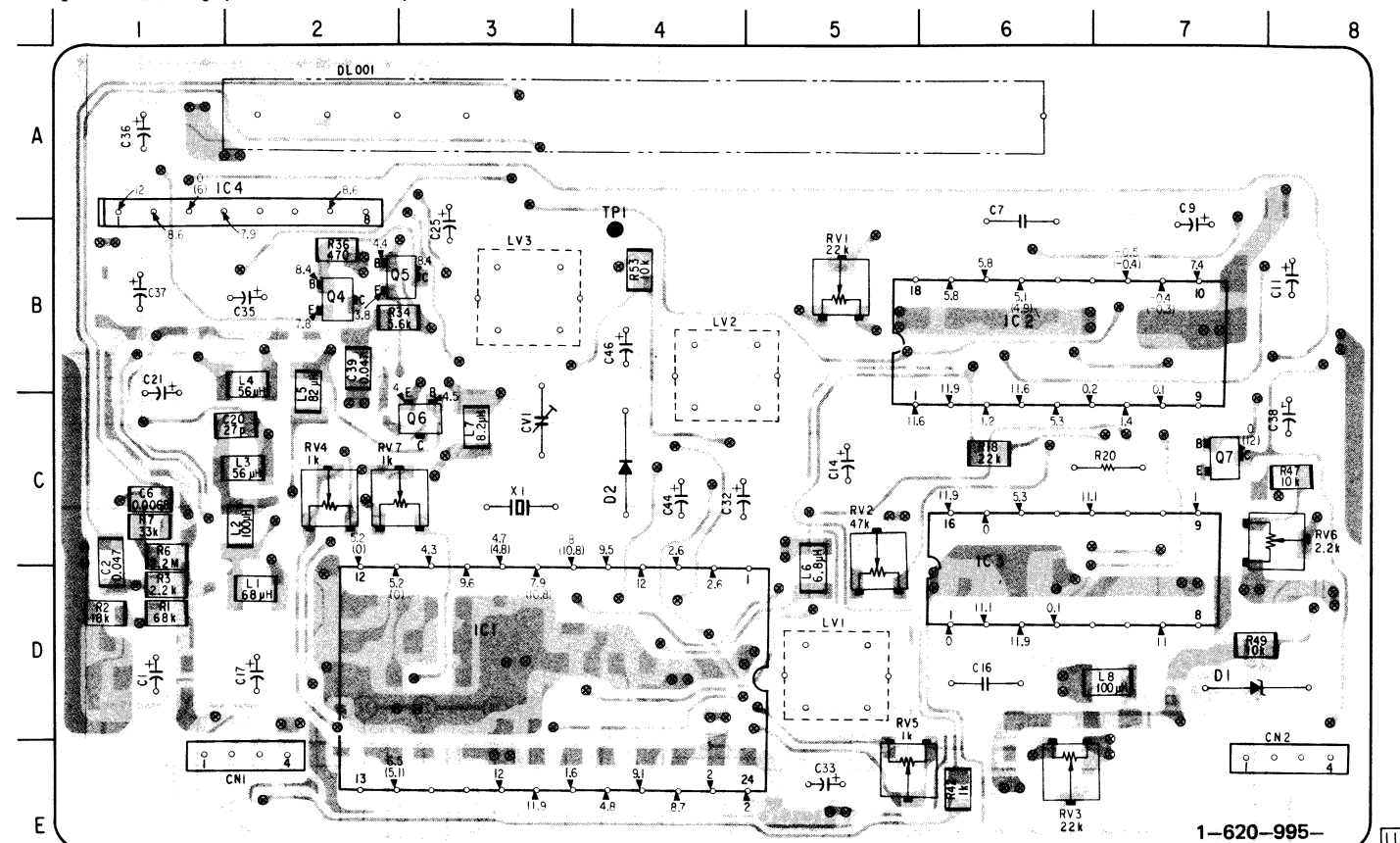


| | |
|-----|----------|
| CV1 | C.3 |
| D1 | D.7 |
| D2 | C.4 |
| IC1 | D.3 |
| IC2 | B.6 |
| IC3 | C.6 |
| IC4 | A.2 |
| LV1 | D.5 |
| LV2 | B.4 |
| LV3 | B.3 |
| Q1 | G.1 |
| Q2 | G.1 |
| Q3 | H.2 |
| Q4 | B.2 |
| Q5 | B.2 |
| Q6 | C.3 |
| Q7 | C.7 |
| Q8 | B.8 |
| Q9 | B.8 |
| Q10 | A.7 |
| Q12 | D.2 |
| RV1 | B.5 |
| RV2 | C.5 |
| RV3 | E.6 |
| RV4 | C.2 |
| RV5 | E.5 |
| RV6 | C.8 |
| RV7 | C.3 |
| TP1 | B.4, I.4 |

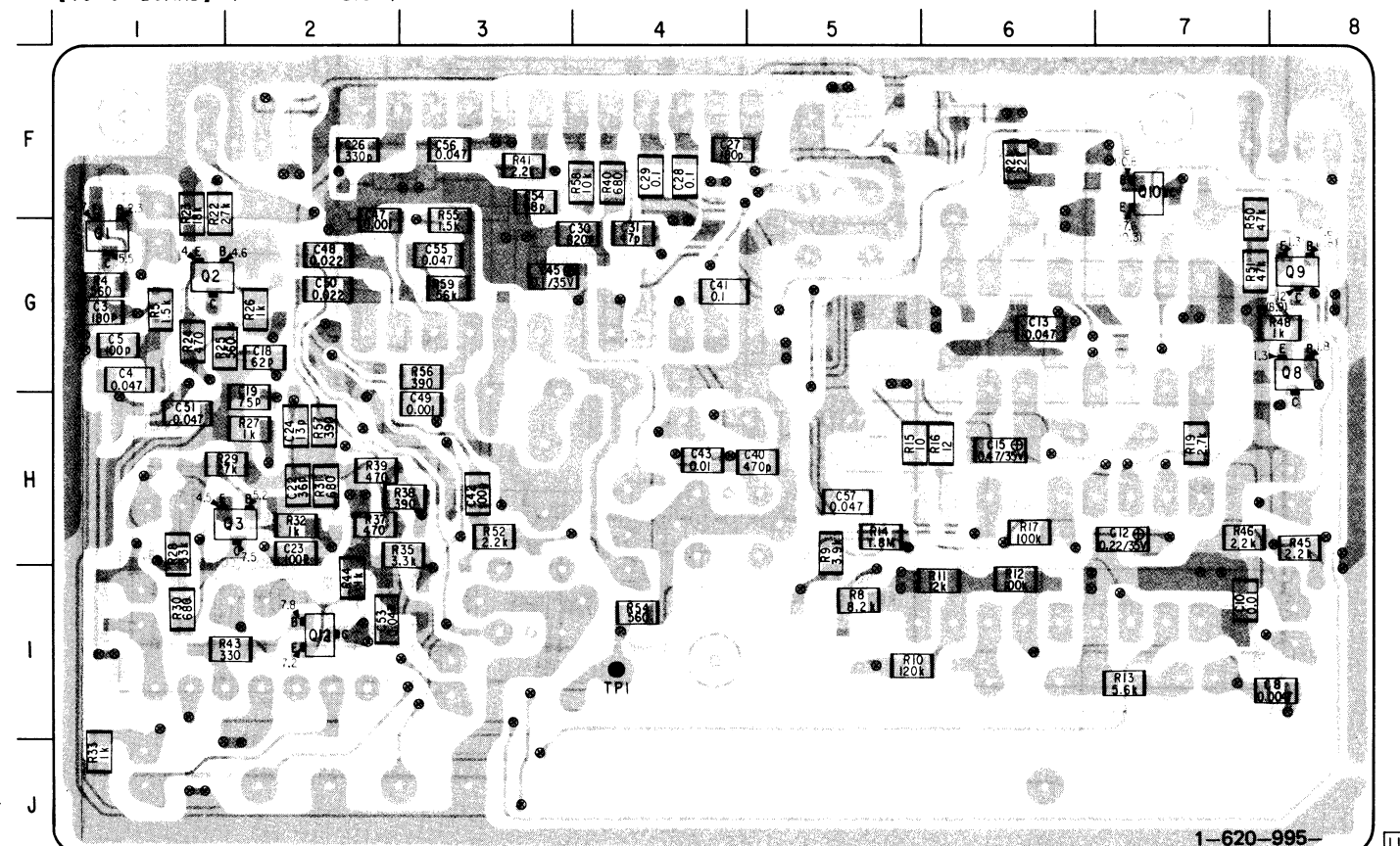
TC-3(SECAM-PAL CONVERSION) PRINTED WIRING BOARD

—Ref. No. TC-3 BOARD : 3,500 series—

[TC-3 BOARD] (COMPONENT SIDE)



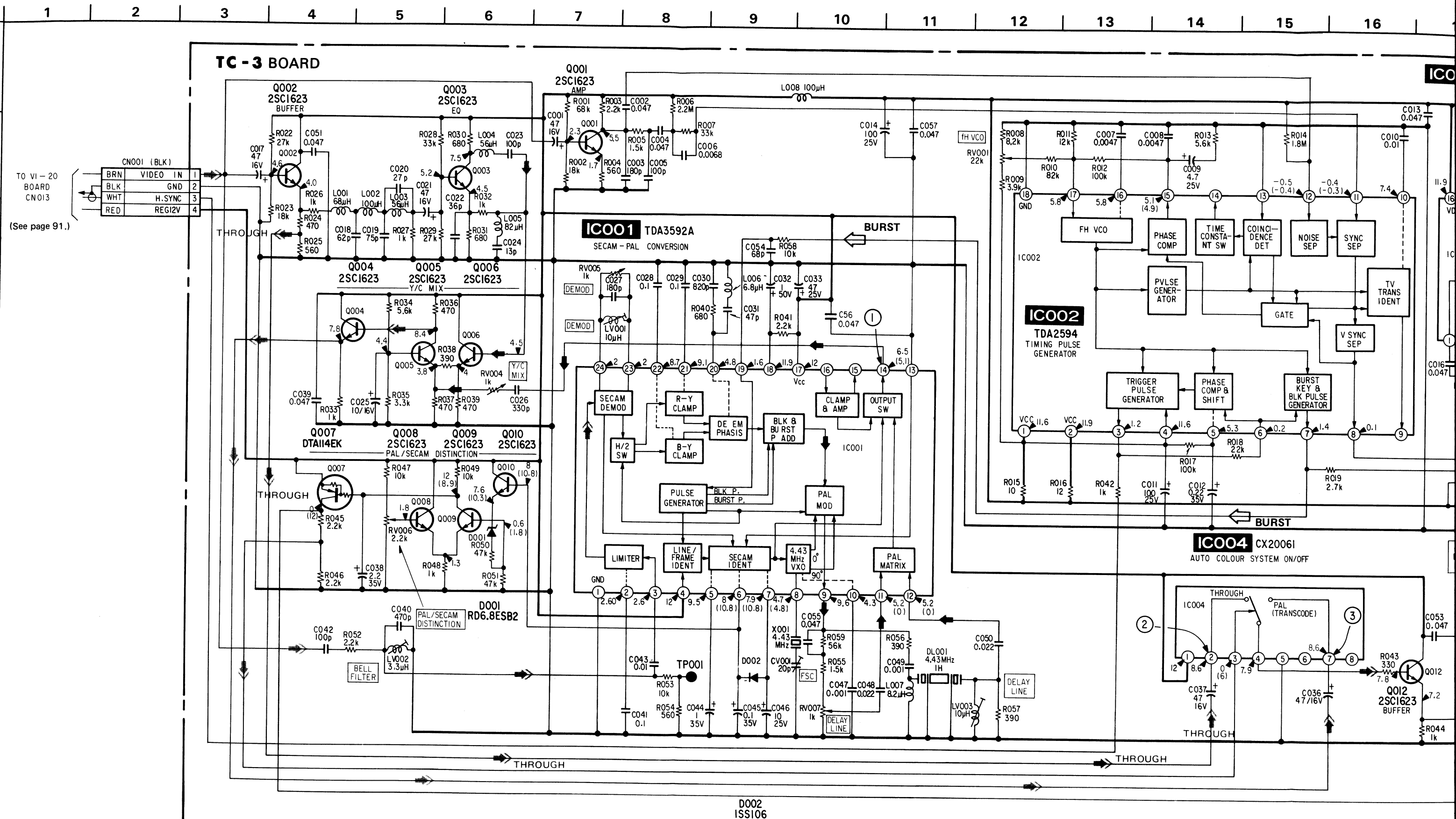
[TC-3 BOARD] (SOLDER SIDE)

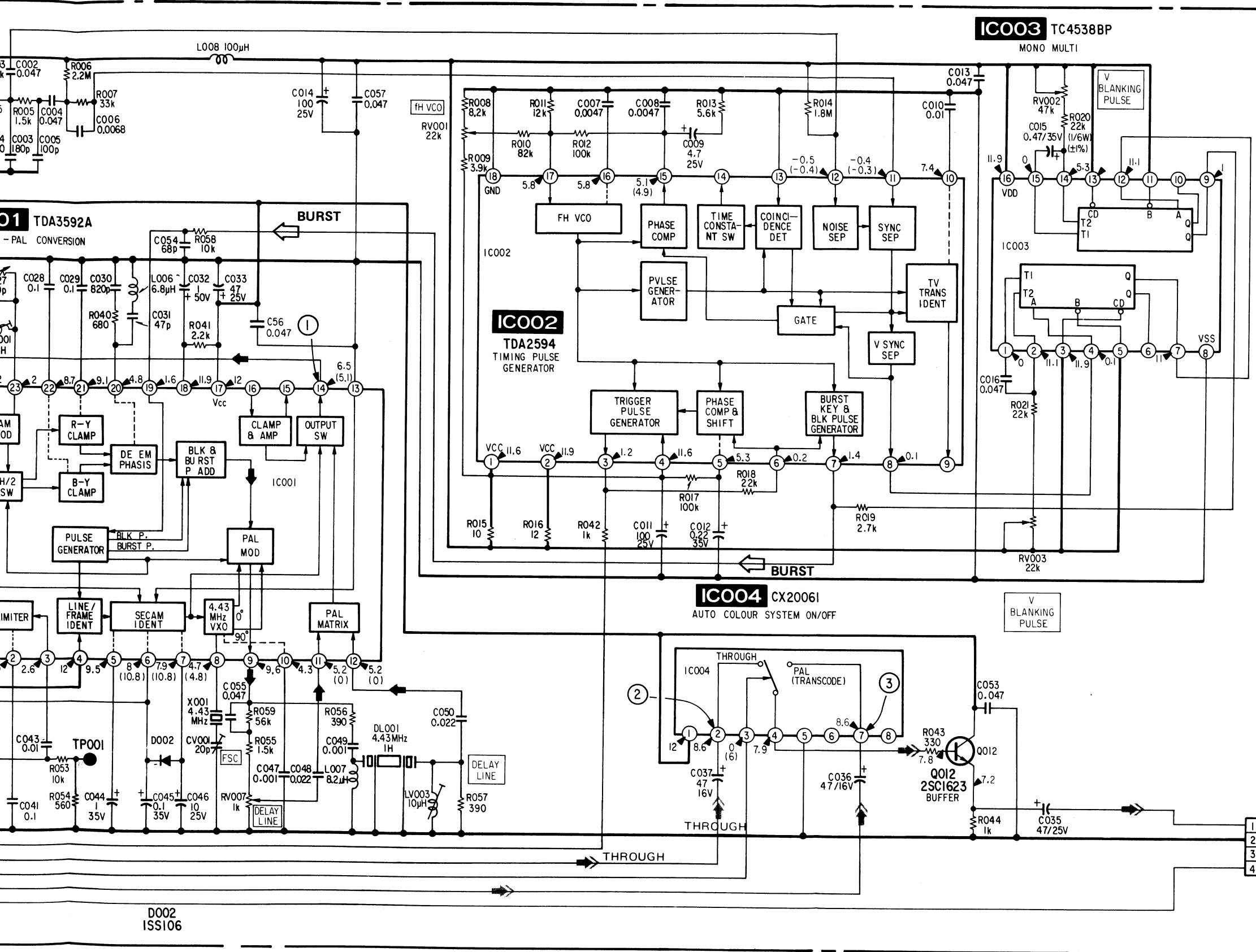


no mark : SECAM in
() : PAL in

TC-3 (SECAM-PAL CONVERSION) SCHEMATIC DIAGRAM

—Ref. No. TC-3 BOARD : 3,500 series—





D002
ISS106

A

B

C

D

E

F

G

H

I

J

Note:

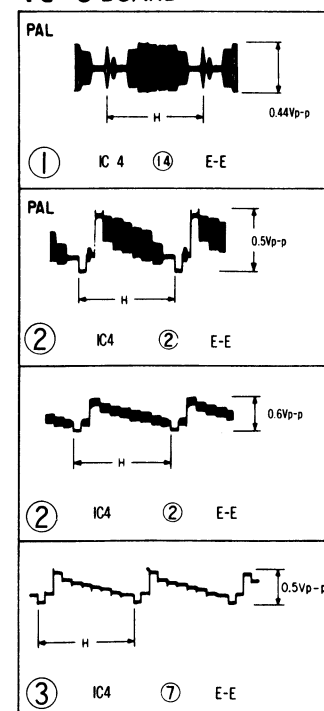
- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
k Ω : 1000 Ω , M Ω : 1000k Ω .
- All capacitors are in μ F unless otherwise noted. pF: μ F.
50V or less are not indicated except for electrolytic, and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : adjustment for repair.
- : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production tolerances.

When indicating parts by reference number, please include the board name.

Signal path

- ➡ : REC Y Signal
- ➡ : REC CHROMA Signal
- ➡➡ : REC Y/CHROMA Signal

TC - 3 BOARD



VIDEO OUT SIGNAL (AUTO COLOUR ON/OFF)

- When ON, the signal is passing the transcoder. The PAL signal goes out unless otherwise operated wrong.
- When OFF, the signal is the THROUGH signal. Generally the PAL signal goes out, but when receiving the DDR broadcasting, the SECAM signal goes out.

CN002 (WHT)

| | | |
|---|--------------------|-----|
| 1 | VIDEO OUT | YEL |
| 2 | GND | GRY |
| 3 | N. C | GRY |
| 4 | AUTO COLOUR ON/OFF | GRY |

TO VI-20 BOARD
CN012
(See page 91.)

Note:

- : indicates a lead wire mounted on the component side.
- : indicates a lead wire mounted on the printed side.
- ⊗ : Through hole.
- : Pattern from the side which enables seeing.

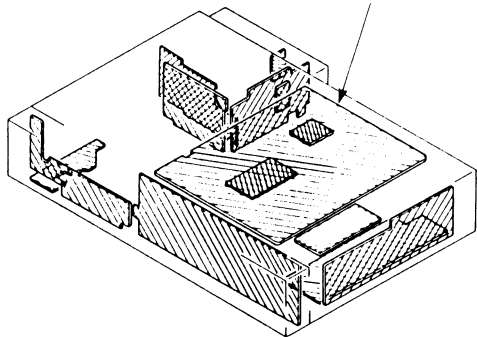
When indicating parts by reference number, please include the board name.

Caution:

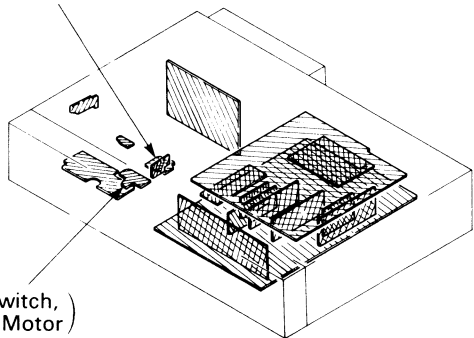
Pattern face side: Parts on the pattern face side seen from (Solder Side) the pattern face are indicated.

Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

SP-2
(System Control)



LS-9
(Loading Switch)



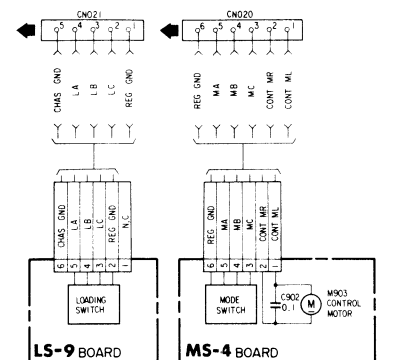
MS-4
(Mode Switch,
Control Motor)

| | | | | | |
|-------|------|-------|------|-------|------|
| CN001 | D-27 | IC210 | K-7 | Q390 | J-14 |
| CN002 | K-19 | IC211 | I-5 | Q401 | L-4 |
| CN003 | M-32 | IC212 | J-5 | Q480 | G-25 |
| CN004 | A-27 | IC213 | K-3 | Q481 | G-25 |
| CN005 | A-22 | IC215 | J-2 | Q482 | F-25 |
| CN006 | A-23 | IC218 | F-6 | Q500 | F-10 |
| CN007 | A-28 | IC220 | F-27 | Q501 | F-10 |
| CN008 | G-32 | IC500 | E-23 | Q502 | F-9 |
| CN009 | A-24 | IC501 | C-22 | Q601 | C-13 |
| CN010 | E-28 | IC502 | J-15 | Q602 | C-14 |
| CN011 | L-20 | IC600 | B-19 | Q604 | B-14 |
| CN012 | M-14 | IC601 | H-20 | Q605 | B-21 |
| CN013 | L-22 | IC602 | E-20 | Q606 | J-18 |
| CN014 | K-20 | IC603 | F-20 | Q701 | L-9 |
| CN015 | A-24 | IC604 | D-14 | Q702 | L-9 |
| CN016 | H-32 | IC605 | E-18 | Q703 | L-9 |
| CN017 | C-29 | IC606 | H-18 | Q704 | M-24 |
| CN018 | A-28 | IC701 | K-5 | Q705 | K-23 |
| CN019 | C-30 | IC703 | L-30 | Q706 | K-24 |
| CN020 | E-32 | | | Q707 | L-9 |
| CN021 | E-31 | Q010 | I-3 | Q708 | L-10 |
| CN022 | C-28 | Q011 | H-31 | Q709 | L-25 |
| CN027 | A-26 | Q012 | H-31 | Q710 | M-21 |
| CN028 | B-31 | Q013 | G-3 | Q711 | L-10 |
| CN029 | A-29 | Q014 | D-10 | Q712 | K-11 |
| CN030 | L-25 | Q015 | D-10 | Q713 | L-10 |
| CN031 | J-22 | Q020 | B-5 | Q714 | L-23 |
| CN032 | L-21 | Q021 | B-28 | Q715 | L-22 |
| CN033 | G-23 | Q022 | B-28 | Q716 | M-10 |
| CN034 | B-22 | Q023 | B-5 | Q717 | K-10 |
| CN035 | M-12 | Q054 | I-22 | Q777 | J-29 |
| CN036 | F-22 | Q055 | I-22 | | |
| CN037 | F-23 | Q060 | F-3 | RV201 | J-26 |
| CN038 | B-22 | Q085 | G-16 | RV202 | J-26 |
| | | Q086 | H-16 | RV203 | J-26 |
| | | Q090 | D-23 | RV204 | J-26 |
| | | Q091 | D-24 | RV206 | K-25 |
| | | Q201 | B-5 | RV208 | K-25 |
| | | Q202 | B-28 | RV209 | D-25 |
| | | Q203 | B-27 | RV210 | M-29 |
| | | Q204 | B-6 | RV601 | B-20 |
| | | Q205 | K-26 | RV602 | F-18 |
| | | Q206 | C-30 | RV603 | C-21 |
| | | Q207 | C-2 | RV604 | B-21 |
| | | Q208 | D-32 | RV701 | M-27 |
| | | Q209 | D-30 | | |
| | | Q210 | H-11 | TP001 | G-29 |
| | | Q211 | K-4 | TP002 | I-30 |
| | | Q212 | A-26 | TP003 | E-32 |
| | | Q213 | B-7 | TP004 | G-29 |
| | | Q214 | C-7 | TP005 | G-29 |
| | | Q215 | C-7 | TP201 | I-23 |
| | | Q216 | C-6 | TP202 | G-24 |
| | | Q217 | D-6 | TP203 | G-22 |
| | | Q218 | C-26 | TP204 | G-22 |
| | | Q219 | C-27 | TP205 | G-22 |
| | | Q220 | C-7 | TP206 | J-21 |
| | | Q221 | B-6 | TP207 | G-24 |
| | | Q222 | C-26 | TP208 | K-29 |
| | | Q223 | C-7 | TP209 | L-22 |
| | | Q224 | C-27 | TP210 | B-27 |
| | | Q225 | D-6 | TP211 | B-27 |
| | | Q226 | K-9 | TP212 | J-27 |
| | | Q227 | K-10 | TP213 | K-28 |
| | | Q228 | J-6 | TP214 | K-25 |
| | | Q229 | F-3 | TP215 | J-24 |
| | | Q230 | F-4 | TP216 | K-26 |
| | | Q232 | K-23 | TP217 | K-26 |
| | | Q233 | K-30 | TP219 | M-26 |
| | | Q235 | H-11 | TP220 | I-30 |
| | | Q237 | C-9 | TP221 | L-27 |
| | | Q238 | G-3 | TP222 | J-29 |
| | | Q240 | E-26 | TP223 | L-26 |
| | | Q242 | K-12 | TP224 | J-23 |
| | | Q245 | K-3 | TP225 | E-27 |
| | | Q246 | H-28 | TP226 | G-24 |
| | | Q248 | I-31 | TP227 | L-27 |
| | | Q249 | K-31 | TP228 | I-30 |
| | | Q250 | K-31 | TP229 | G-28 |
| | | Q251 | L-31 | TP230 | M-26 |
| | | Q252 | L-30 | TP231 | L-21 |
| | | Q253 | L-3 | TP232 | C-32 |
| | | Q254 | K-31 | TP233 | C-31 |
| | | Q256 | K-4 | TP234 | C-31 |
| | | Q260 | B-1 | TP235 | L-25 |
| | | Q261 | B-1 | TP236 | M-30 |
| | | Q262 | B-2 | TP237 | I-32 |
| | | Q263 | H-10 | TP238 | E-25 |
| | | Q264 | I-10 | TP239 | J-31 |
| | | Q280 | C-31 | TP240 | E-26 |
| | | Q281 | D-2 | TP241 | E-26 |
| | | Q282 | D-2 | TP242 | E-26 |

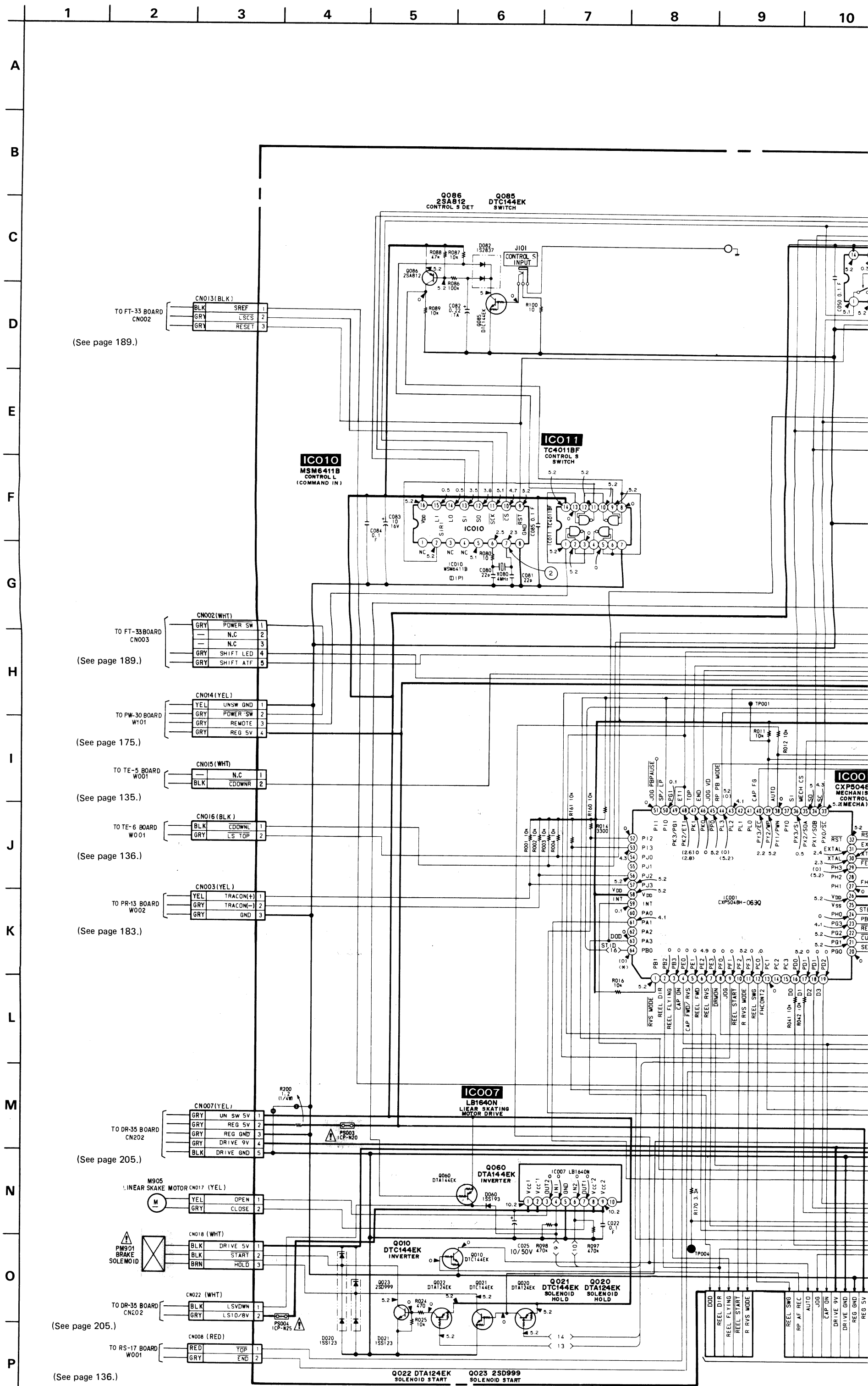
| | |
|-------|------|
| TP603 | G-20 |
| TP604 | D-18 |
| TP607 | G-22 |
| TP608 | C-21 |
| TP609 | E-18 |

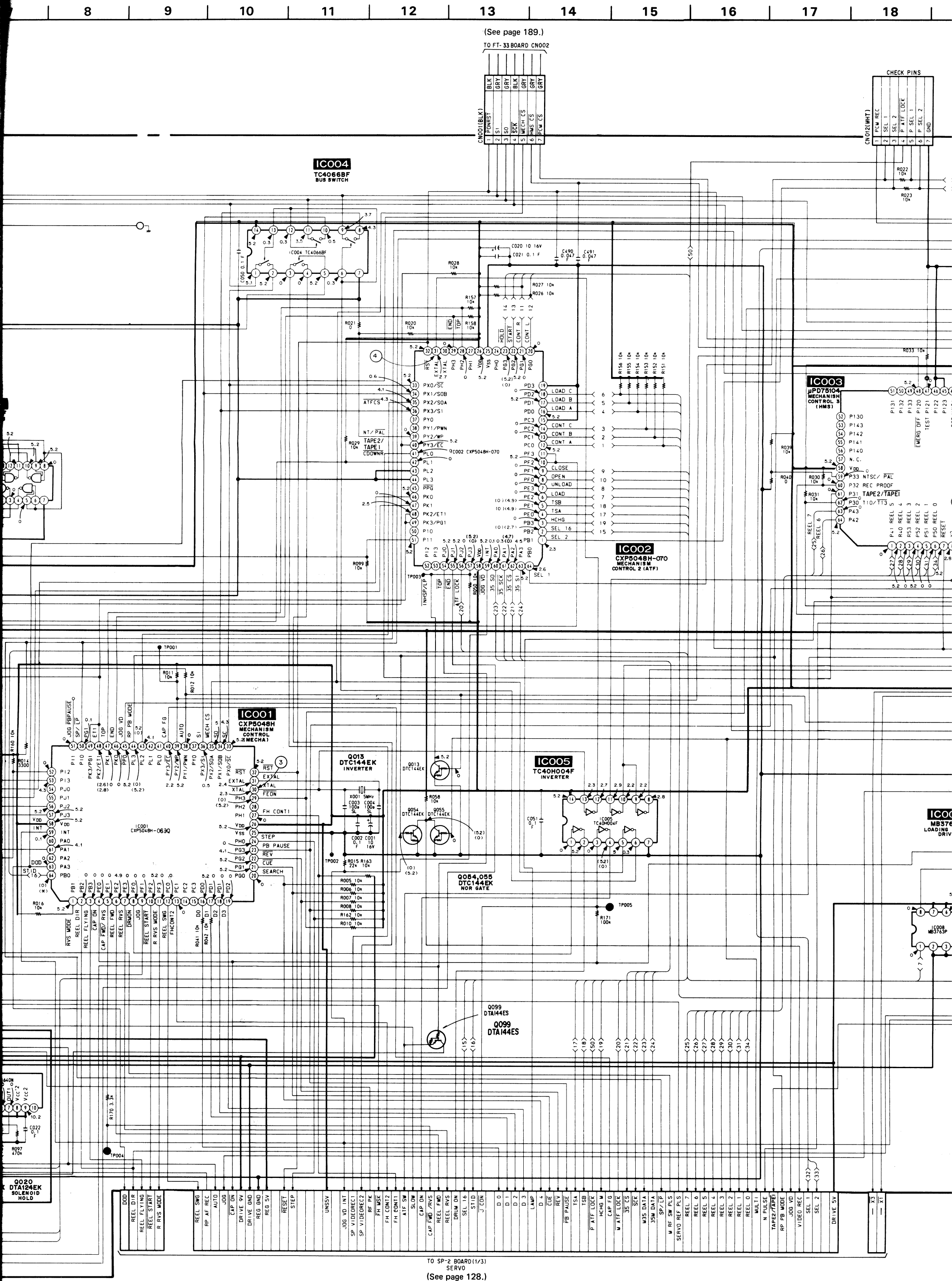
SP-2 BOARD (SOLDER SIDE)

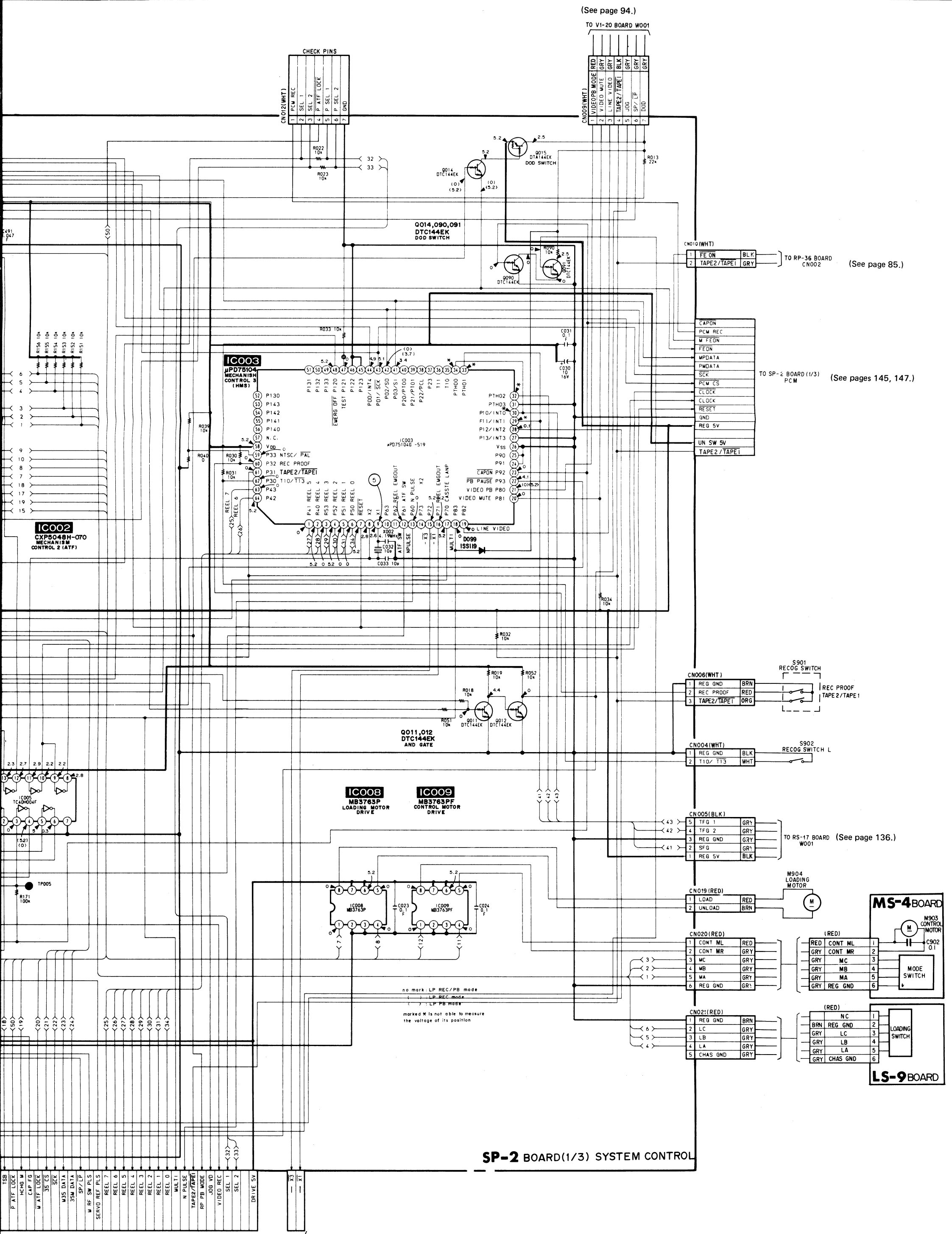


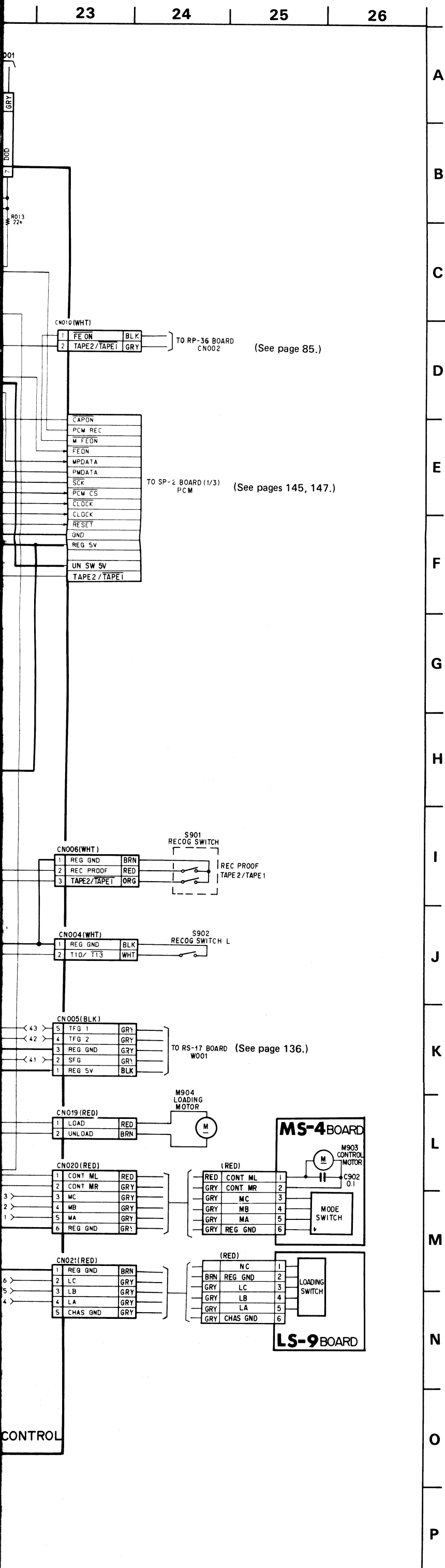


TO RB-2
BOARD





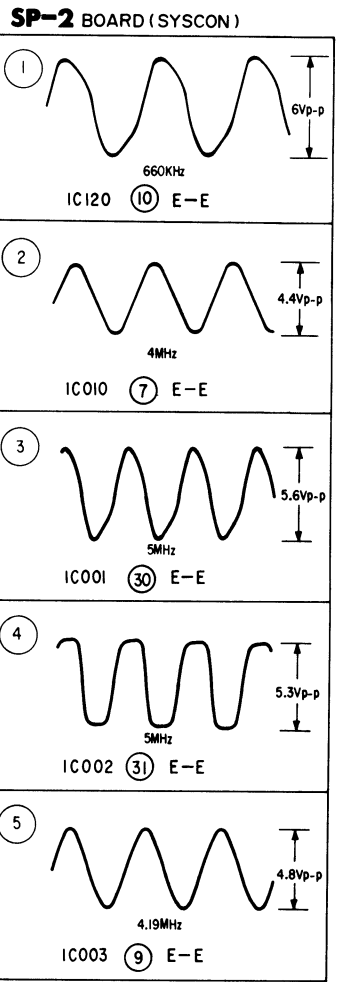




- Note:**
- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
 - All resistors are in ohms, 1/10W unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
 - All capacitors are in μF unless otherwise noted. pF: μμF.
50V or less are not indicated except for electrolytic, and tantalums.
 - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
 - : panel designation.
 - : internal component.
 - : adjustment for repair.
 - : B + bus.
 - Voltages are dc with respect to ground unless otherwise noted.
 - Readings are taken with a colour-bar signal input.
 - Readings are taken with a digital multimeter (DC10MΩ).
 - Voltage variations may be noted due to normal production tolerances.

Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.



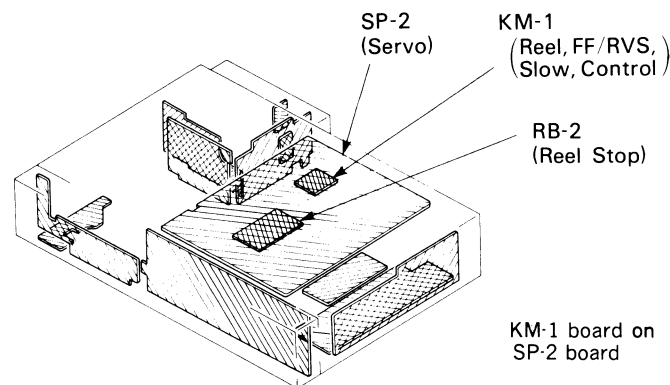
Note:

- : indicates a lead wire mounted on the component side.
- : indicates a lead wire mounted on the printed side.
- ⊗ : Through hole.
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

When indicating parts by reference number, please include the board name.

Caution:

Pattern face side: Parts on the pattern face side seen from (Solder Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.



Note:

- All resistors are in ohms, 1/6W unless otherwise noted. k Ω : 1000 Ω , M Ω : 1000k Ω .
- All capacitors are in μ F unless otherwise noted. pF : μ F. 50WV or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- △ : internal component.
- : adjustment for repair.
- : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production tolerances.

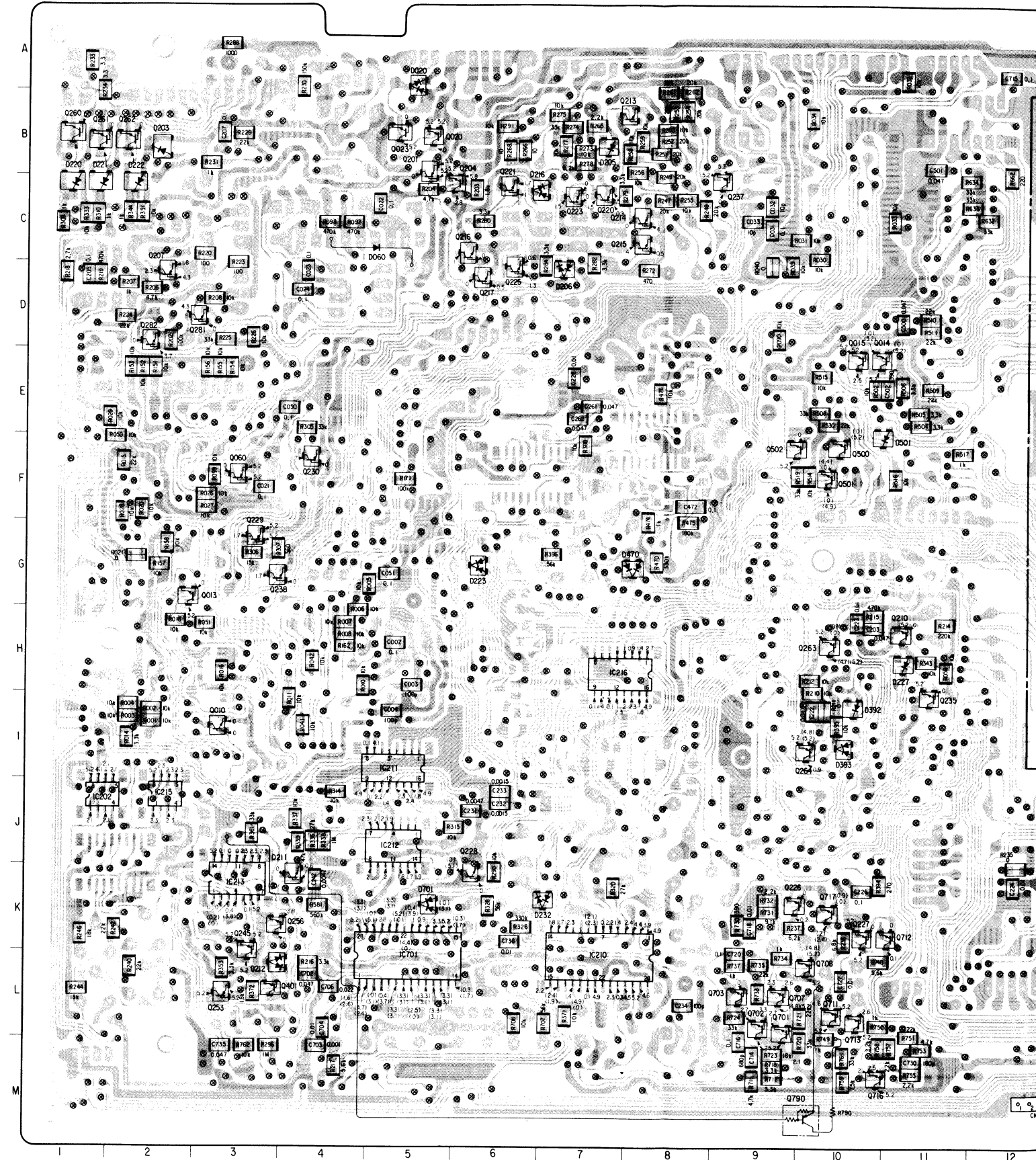
When indicating parts by reference number, please include the board name.

| | | | | | | | |
|-------|------|-------|------|-------|------|-------|------|
| CN001 | D-27 | IC210 | K-7 | Q390 | J-14 | TP603 | G-20 |
| CN002 | K-19 | IC211 | I-5 | Q401 | L-4 | TP604 | D-18 |
| CN003 | M-32 | IC212 | J-5 | Q480 | G-25 | TP607 | G-22 |
| CN004 | A-27 | IC213 | K-3 | Q481 | G-25 | TP608 | C-21 |
| CN005 | A-22 | IC215 | J-2 | Q482 | F-25 | TP609 | E-18 |
| CN006 | A-23 | IC218 | F-6 | Q500 | F-10 | | |
| CN007 | A-28 | IC220 | F-27 | Q501 | F-10 | | |
| CN008 | G-32 | IC500 | E-23 | Q502 | F-9 | | |
| CN009 | A-24 | IC501 | C-22 | Q601 | C-13 | | |
| CN010 | E-28 | IC502 | J-15 | Q602 | C-14 | | |
| CN011 | L-20 | IC600 | B-19 | Q604 | B-14 | | |
| CN012 | M-14 | IC601 | H-20 | Q605 | B-21 | | |
| CN013 | L-22 | IC602 | E-20 | Q606 | J-18 | | |
| CN014 | K-20 | IC603 | F-20 | Q701 | L-9 | | |
| CN015 | A-24 | IC604 | D-14 | Q702 | L-9 | | |
| CN016 | H-32 | IC605 | E-18 | Q703 | L-9 | | |
| CN017 | C-29 | IC606 | H-18 | Q704 | M-24 | | |
| CN018 | A-28 | IC701 | K-5 | Q705 | K-23 | | |
| CN019 | C-30 | IC703 | L-30 | Q706 | K-24 | | |
| CN020 | E-32 | | | Q707 | L-9 | | |
| CN021 | E-31 | Q010 | I-3 | Q708 | L-10 | | |
| CN022 | C-28 | Q011 | H-31 | Q709 | L-25 | | |
| CN207 | A-26 | Q012 | H-31 | Q710 | M-21 | | |
| CN212 | B-31 | Q013 | G-3 | Q711 | L-10 | | |
| CN213 | A-29 | Q014 | D-10 | Q712 | K-11 | | |
| CN214 | L-25 | Q015 | D-10 | Q713 | L-10 | | |
| CN215 | J-22 | Q020 | B-5 | Q714 | L-23 | | |
| CN216 | L-21 | Q021 | B-28 | Q715 | L-22 | | |
| CN217 | G-23 | Q022 | B-28 | Q716 | M-10 | | |
| CN601 | B-22 | Q023 | B-5 | Q717 | K-10 | | |
| CN603 | M-12 | Q054 | I-22 | Q777 | J-29 | | |
| CN605 | F-22 | Q055 | I-22 | | | | |
| CN606 | F-23 | Q060 | F-3 | RV201 | J-26 | | |
| CN607 | B-22 | Q085 | G-16 | RV202 | J-26 | | |
| | | Q086 | H-16 | RV203 | J-26 | | |
| D025 | A-5 | Q090 | D-23 | RV204 | J-26 | | |
| D021 | A-28 | Q091 | D-24 | RV206 | K-25 | | |
| D060 | C-4 | Q201 | B-5 | RV208 | K-25 | | |
| D082 | G-16 | Q202 | B-28 | RV209 | D-25 | | |
| D203 | B-2 | Q203 | B-27 | RV210 | M-29 | | |
| D205 | B-7 | Q204 | B-6 | RV601 | B-20 | | |
| D206 | D-7 | Q205 | K-26 | RV602 | F-18 | | |
| D208 | H-24 | Q206 | C-30 | RV603 | C-21 | | |
| D209 | I-26 | Q207 | C-2 | RV604 | B-21 | | |
| D211 | K-27 | Q208 | D-32 | RV701 | M-27 | | |
| D212 | L-3 | Q209 | D-30 | | | | |
| D213 | I-22 | Q210 | H-11 | TP001 | G-29 | | |
| D214 | J-30 | Q211 | K-4 | TP002 | I-30 | | |
| D215 | D-27 | Q212 | A-26 | TP003 | E-32 | | |
| D216 | C-6 | Q213 | B-7 | TP004 | G-29 | | |
| D217 | I-24 | Q214 | C-7 | TP005 | G-29 | | |
| D218 | K-30 | Q215 | C-7 | TP201 | I-23 | | |
| D220 | B-1 | Q216 | C-6 | TP202 | G-24 | | |
| D221 | B-1 | Q217 | D-6 | TP203 | G-22 | | |
| D222 | B-2 | Q218 | C-26 | TP204 | G-22 | | |
| D223 | G-6 | Q219 | C-27 | TP205 | G-22 | | |
| D226 | K-30 | Q220 | C-7 | TP206 | J-21 | | |
| D227 | H-11 | Q221 | B-6 | TP207 | G-24 | | |
| D230 | D-31 | Q222 | C-26 | TP208 | K-29 | | |
| D232 | K-7 | Q223 | C-7 | TP209 | L-22 | | |
| D233 | E-27 | Q224 | C-27 | TP210 | B-27 | | |
| D390 | F-27 | Q225 | D-6 | TP211 | B-27 | | |
| D391 | J-14 | Q226 | K-9 | TP212 | J-27 | | |
| D392 | I-10 | Q227 | K-10 | TP213 | K-28 | | |
| D393 | I-10 | Q228 | J-6 | TP214 | K-25 | | |
| D501 | F-11 | Q229 | F-3 | TP215 | J-24 | | |
| D502 | H-13 | Q230 | F-4 | TP216 | K-26 | | |
| D600 | B-13 | Q232 | K-23 | TP217 | K-26 | | |
| D601 | H-14 | Q233 | K-30 | TP219 | M-26 | | |
| D603 | I-14 | Q235 | H-11 | TP220 | I-30 | | |
| D604 | H-14 | Q237 | C-9 | TP221 | L-27 | | |
| D701 | K-5 | Q238 | G-3 | TP222 | J-29 | | |
| D702 | K-23 | Q240 | E-26 | TP223 | L-26 | | |
| | | Q242 | K-12 | TP224 | J-23 | | |
| IC001 | H-30 | Q245 | K-3 | TP225 | E-27 | | |
| IC002 | F-31 | Q246 | H-28 | TP226 | G-24 | | |
| IC003 | C-23 | Q248 | I-31 | TP227 | L-27 | | |
| IC004 | F-29 | Q249 | K-31 | TP228 | I-30 | | |
| IC005 | F-28 | Q250 | K-31 | TP229 | G-28 | | |
| IC007 | C-29 | Q251 | L-31 | TP230 | M-26 | | |
| IC008 | D-29 | Q252 | L-30 | TP231 | L-21 | | |
| IC009 | D-30 | Q253 | L-3 | TP232 | C-32 | | |
| IC010 | L-18 | Q254 | K-31 | TP233 | C-31 | | |
| IC011 | H-17 | Q256 | K-4 | TP234 | C-31 | | |
| IC201 | E-26 | Q260 | B-1 | TP235 | L-25 | | |
| IC202 | J-1 | Q261 | B-1 | TP236 | M-30 | | |
| IC204 | H-23 | Q262 | B-2 | TP237 | I-32 | | |
| IC205 | K-21 | Q263 | H-10 | TP238 | E-25 | | |
| IC206 | D-32 | Q264 | I-10 | TP239 | J-31 | | |
| IC207 | B-30 | Q280 | C-31 | TP240 | E-26 | | |
| IC208 | B-32 | Q281 | D-2 | TP241 | E-26 | | |
| IC209 | B-26 | Q282 | D-2 | TP242 | E-26 | | |

SP-2 (SERVO), RB-2 (REEL STOP), KM-1 PRINTED WIRING BOARDS

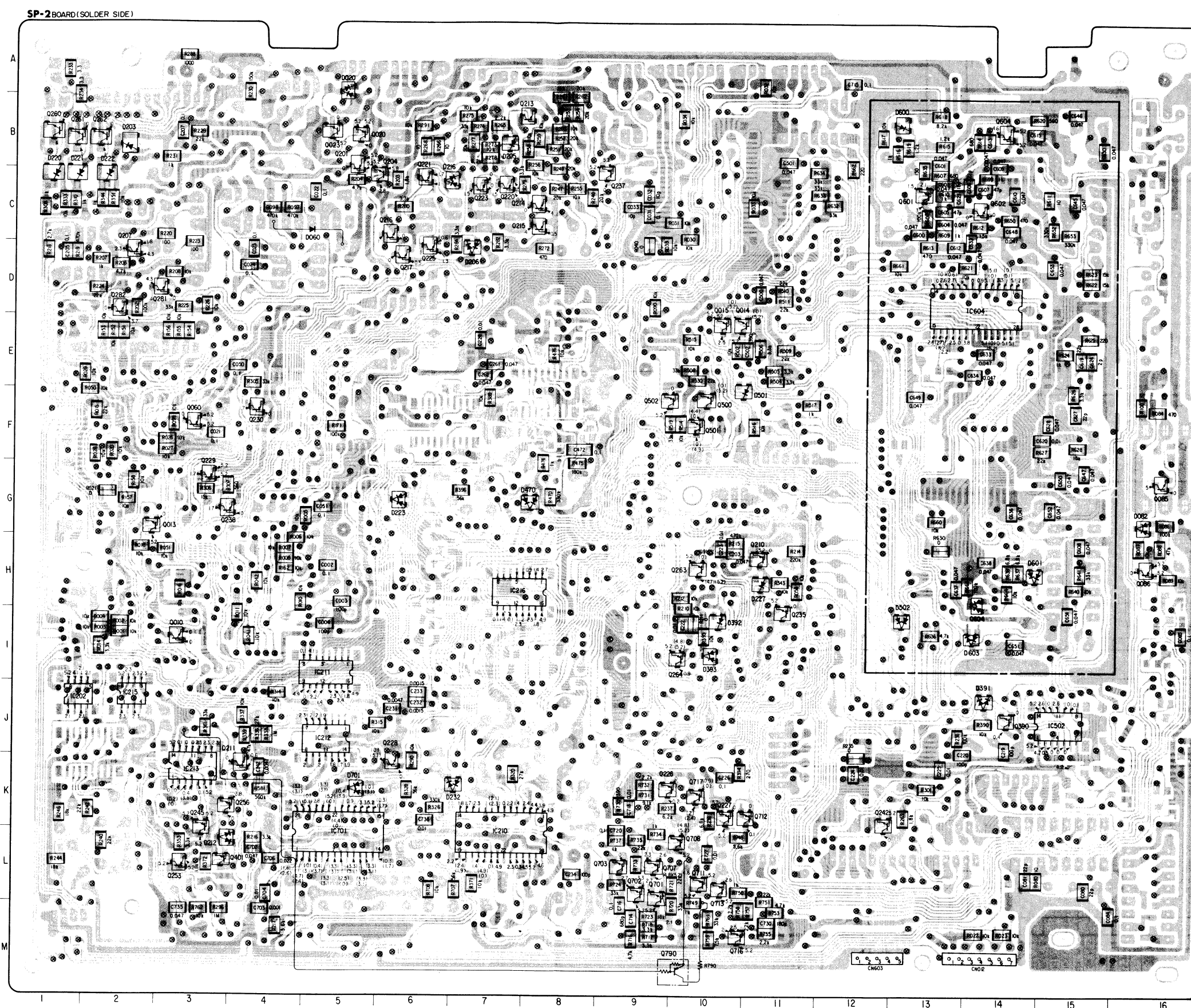
—Ref. No. SP-2 and KM-1 BOARDS : 4,000 series, RB-2 BOARD : 14,000 series—

SP-2 BOARD (SOLDER SIDE)



—Ref. No. SP-2 and KM-1 BOARDS : 4,000 series, RB-2 BOARD : 14,000 series—

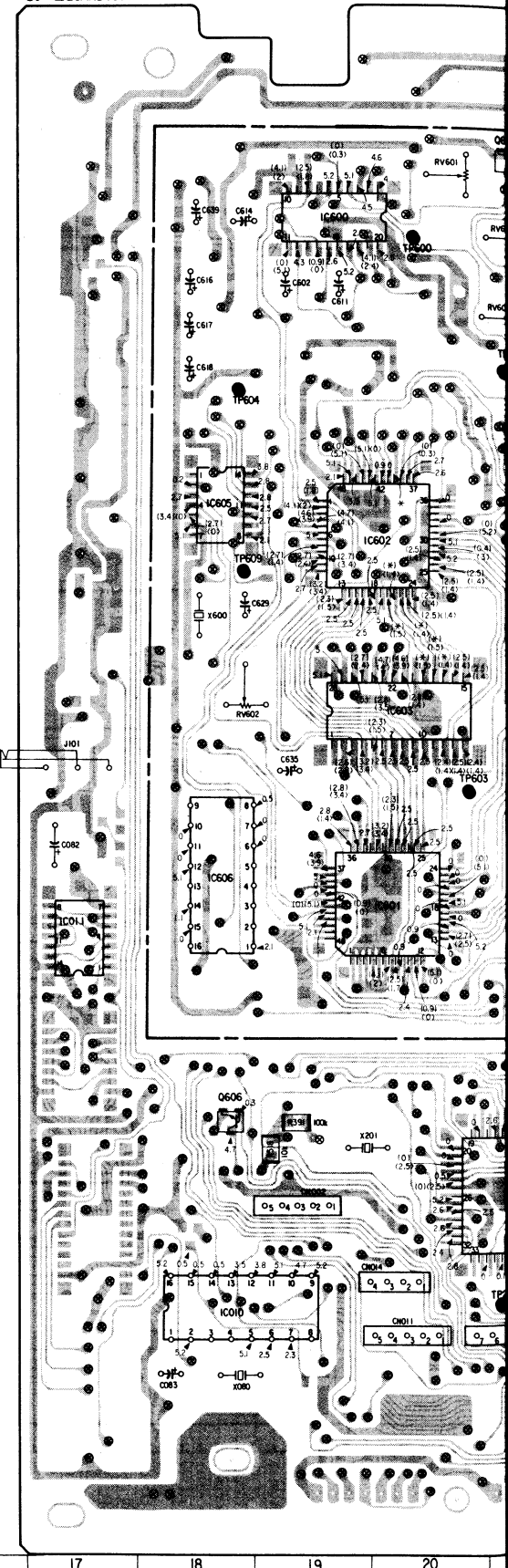
| | |
|-------|------|
| TP603 | G-20 |
| TP604 | D-18 |
| TP607 | G-22 |
| TP608 | C-21 |
| TP609 | E-18 |

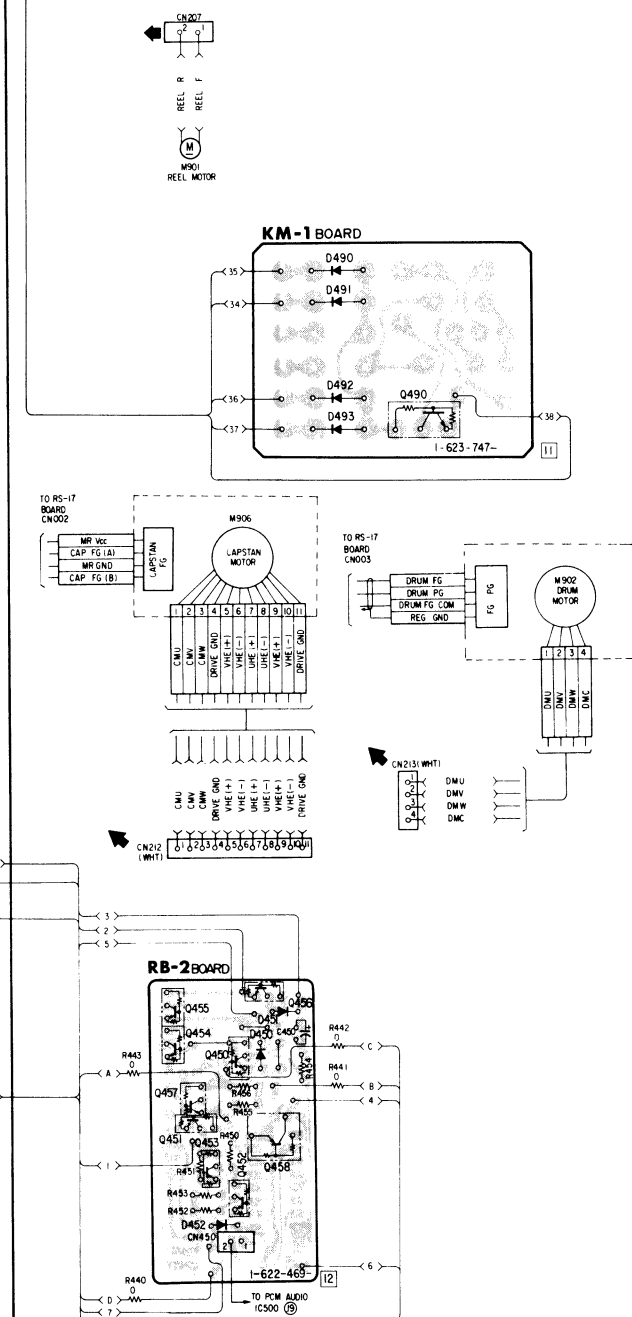
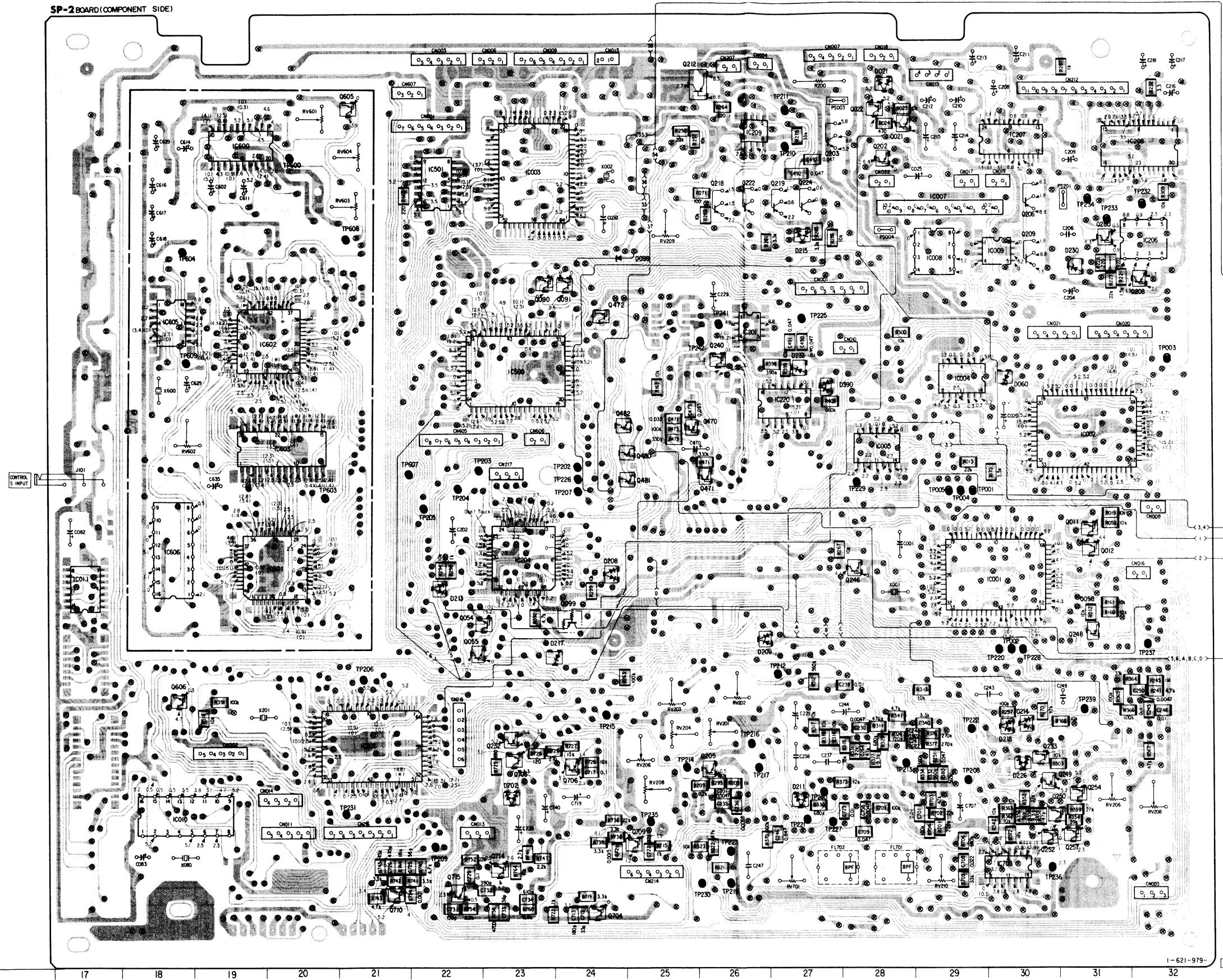


no mark LP REC/PB mode
1 3 LP REC mode
1 2 LP PB mode

Marked * is not able to measure the voltage of it's position

SP-2 BOARD (COMPONENT SIDE)





SP-2 (SERVO), RB-2 (REEL STOP) PRINTED WIRING BOARDS

—Ref. No. SP-2 BOARD : 4,000 series, RB-2 BOARD : 14,000 series—

Note:

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
k Ω : 1000 Ω , M Ω : 1000k Ω .
- All capacitors are in μ F unless otherwise noted. pF : μ F.
50V or less are not indicated except for electrolytic and tantalums.
- : panel designation.
- Δ : internal component.
- : adjustment for repair.
- : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production tolerances.

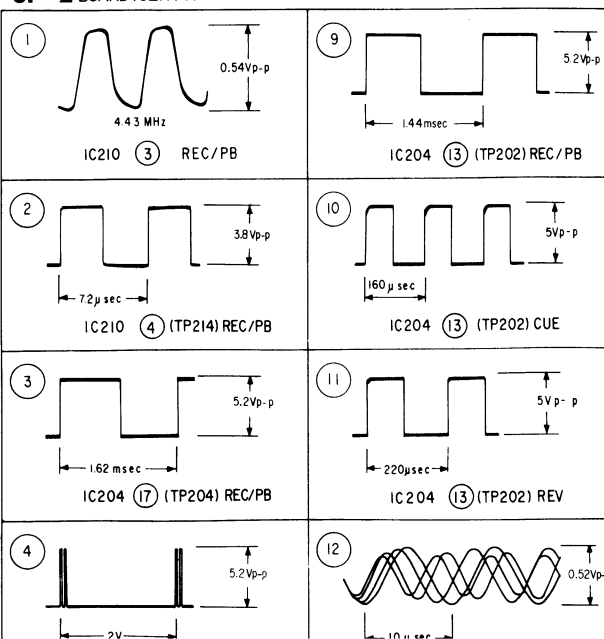
Note: The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

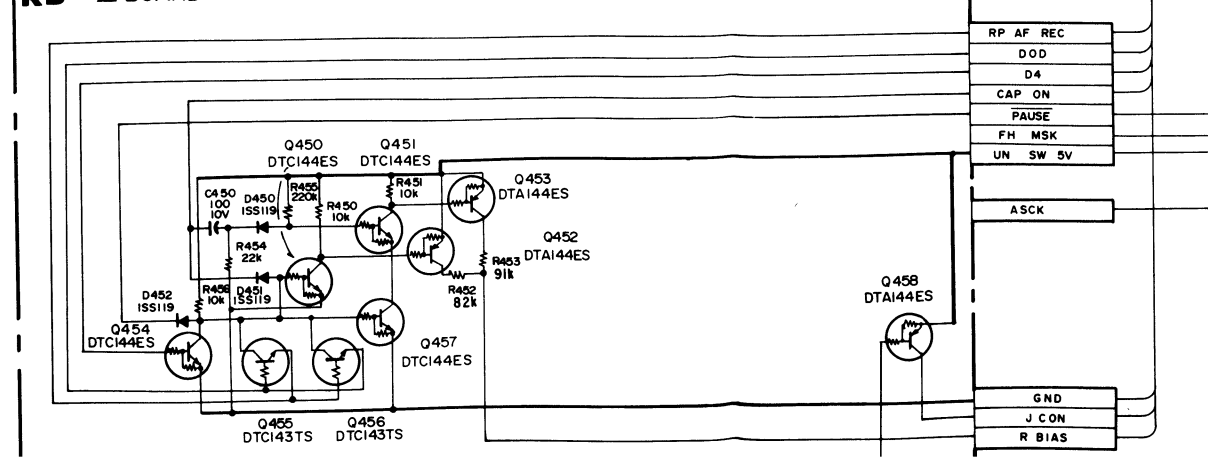
Signal path

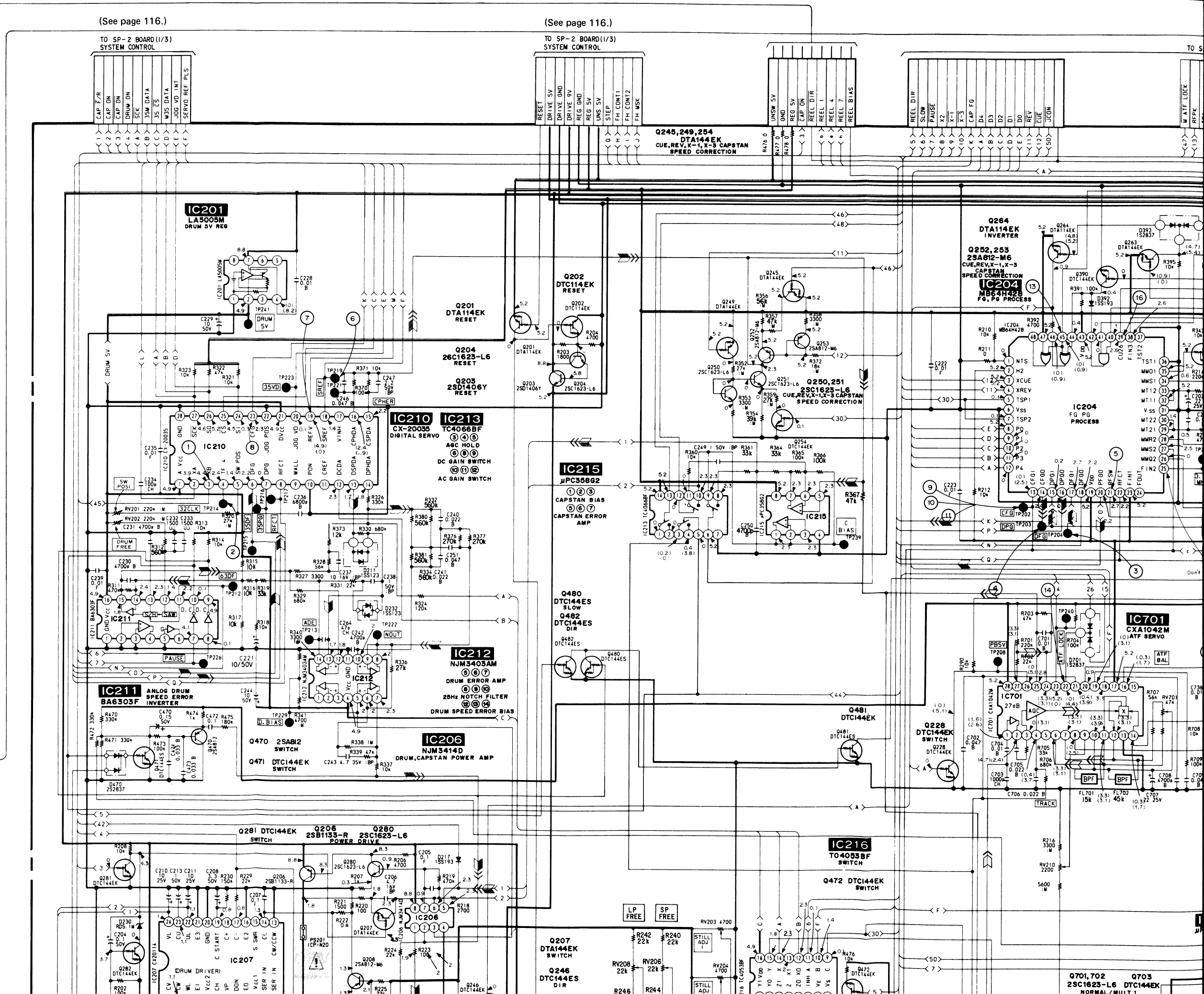
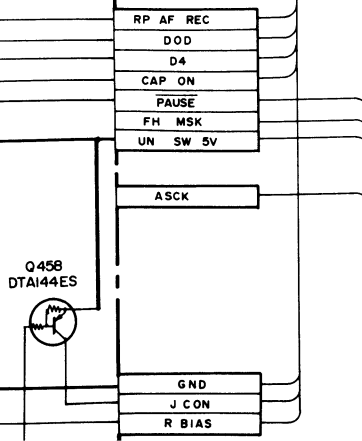
| | REC | REC/PB | PB |
|---------------------------------|-----|--------|----|
| Drum speed servo | | | |
| Drum phase servo | | | |
| Drum servo (speed and phase) | | | |
| Capstan speed servo | | | |
| Capstan phase servo | | | |
| Capstan servo (speed and phase) | | | |

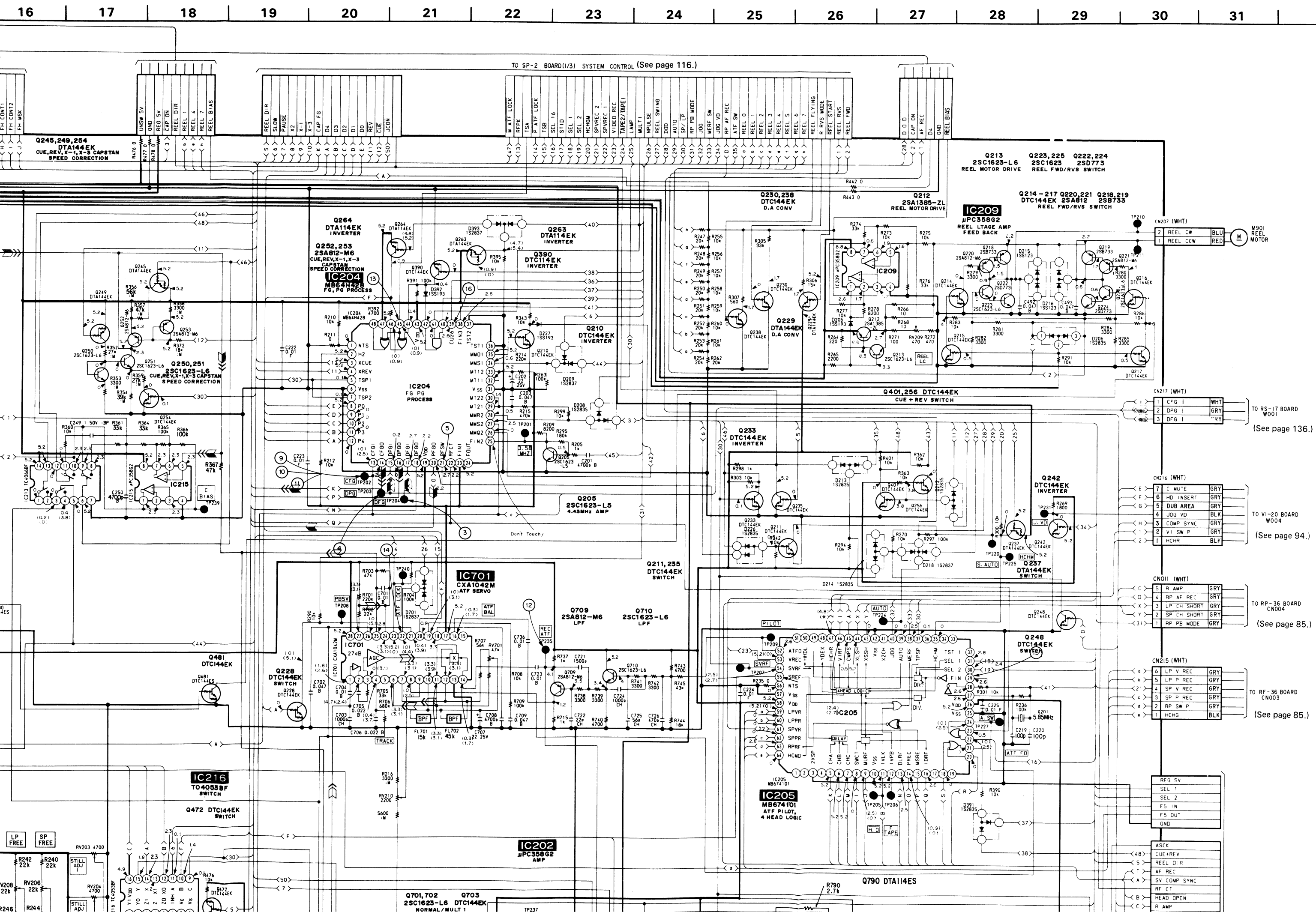
SP-2 BOARD (SERVO)



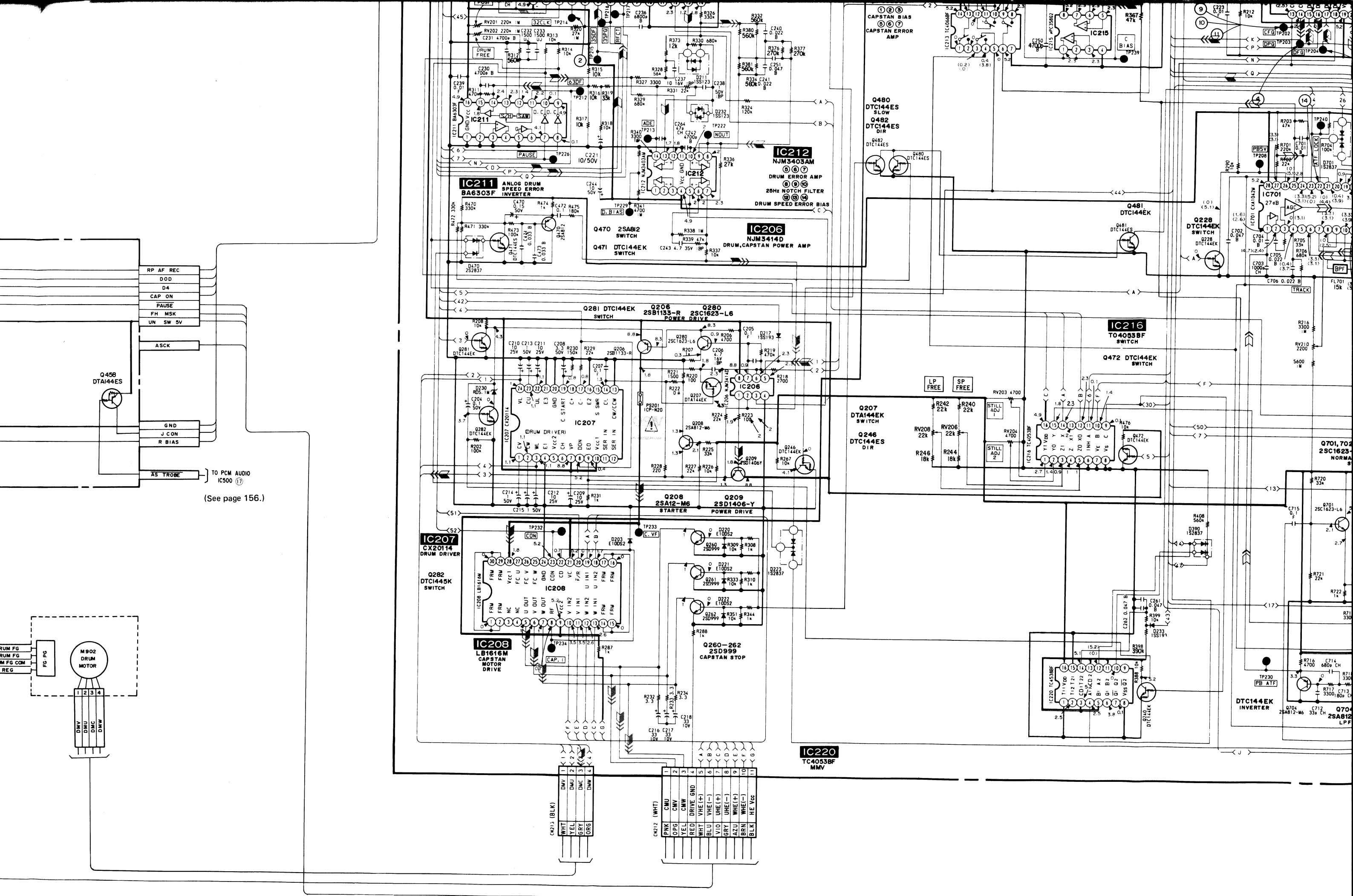
RB-2 BOARD











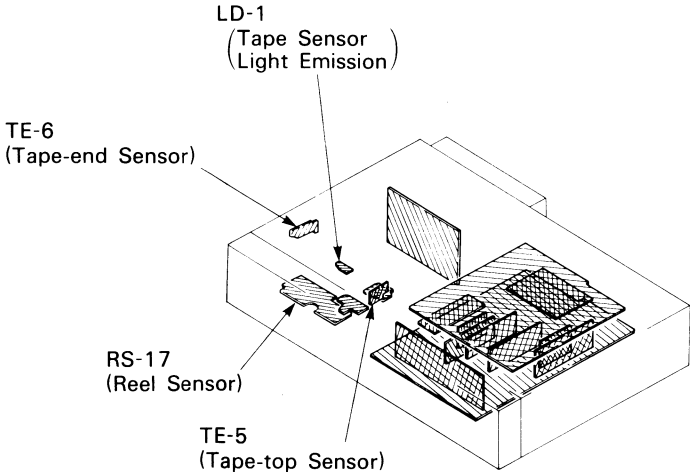
G



- Note:**
- : indicates a lead wire mounted on the component side.
 - : indicates a lead wire mounted on the printed side.
 - ⊗ : Through hole.
 - ▨ : Pattern from the side which enables seeing.
 - ▩ : Pattern of the rear side.
 - Digital transistor (RS-17:Q001,002,003) transistor with resistors.
Refer to the RS-17 board schematic diagram for digital transistor.

When indicating parts by reference number, please include the board name.

Caution:
Pattern face side: Parts on the pattern face side seen from (Solder Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.



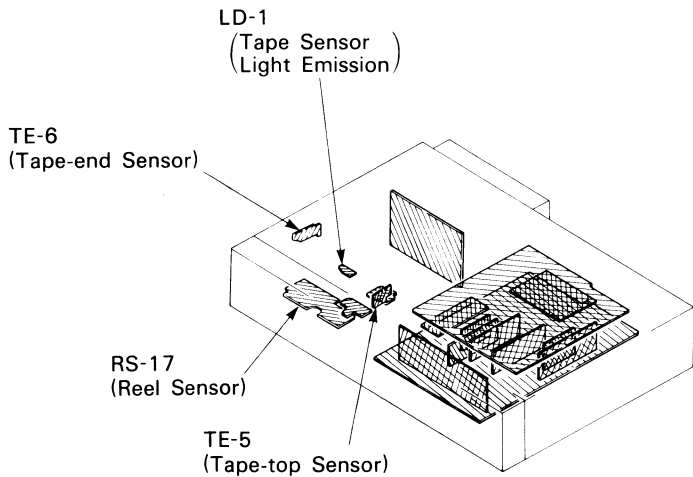
Note:

- : indicates a lead wire mounted on the component side.
- : indicates a lead wire mounted on the printed side.
- ⊗ : Through hole.
- ▨ : Pattern from the side which enables seeing.
- : Pattern of the rear side.
- Digital transistor (RS-17:Q001,002,003) transistor with resistors.
Refer to the RS-17 board schematic diagram for digital transistor.

When indicating parts by reference number, please include the board name.

Caution:

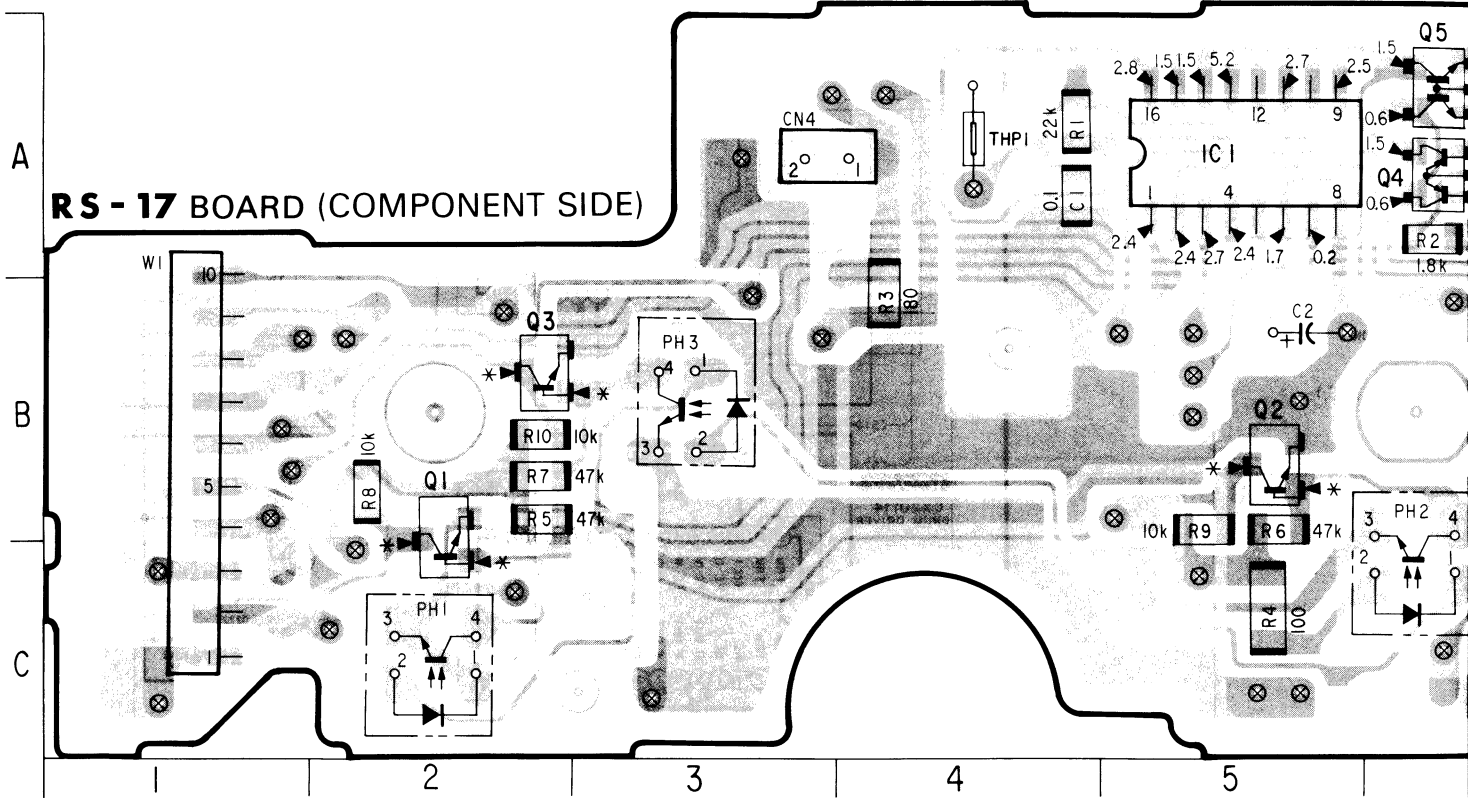
Pattern face side: Parts on the pattern face side seen from (Solder Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

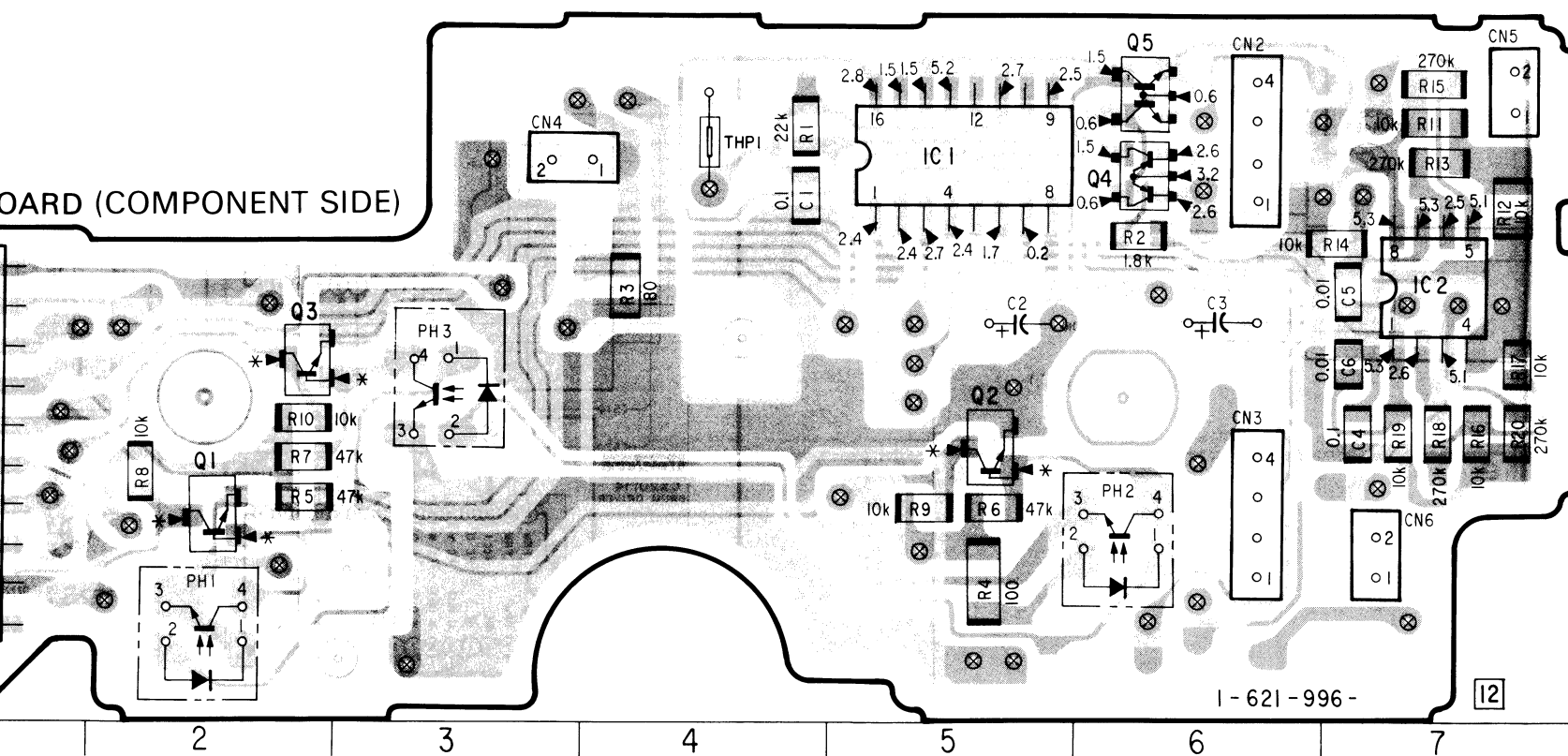


IC001 A-5
IC002 B-7

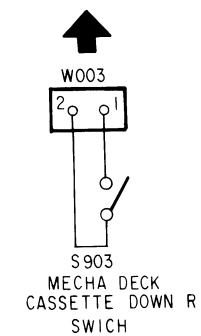
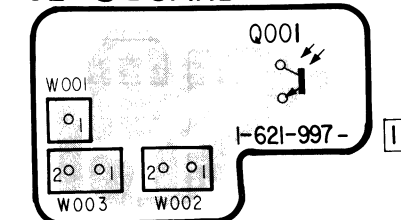
PH001 C-1
PH002 C-6
PH003 B-3

Q001 B-2
Q002 B-5
Q003 B-2
Q004 A-6
Q005 A-6

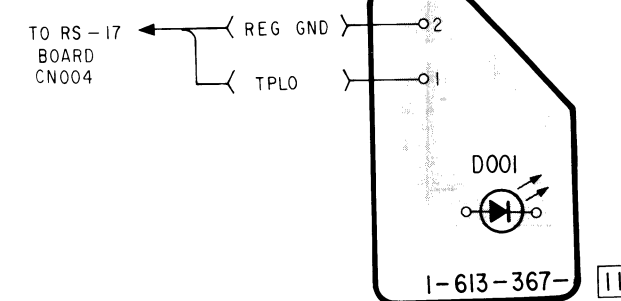




TE-5 BOARD

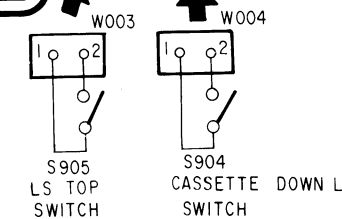
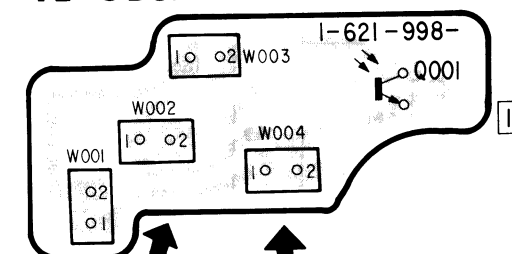


LD-1 BOARD



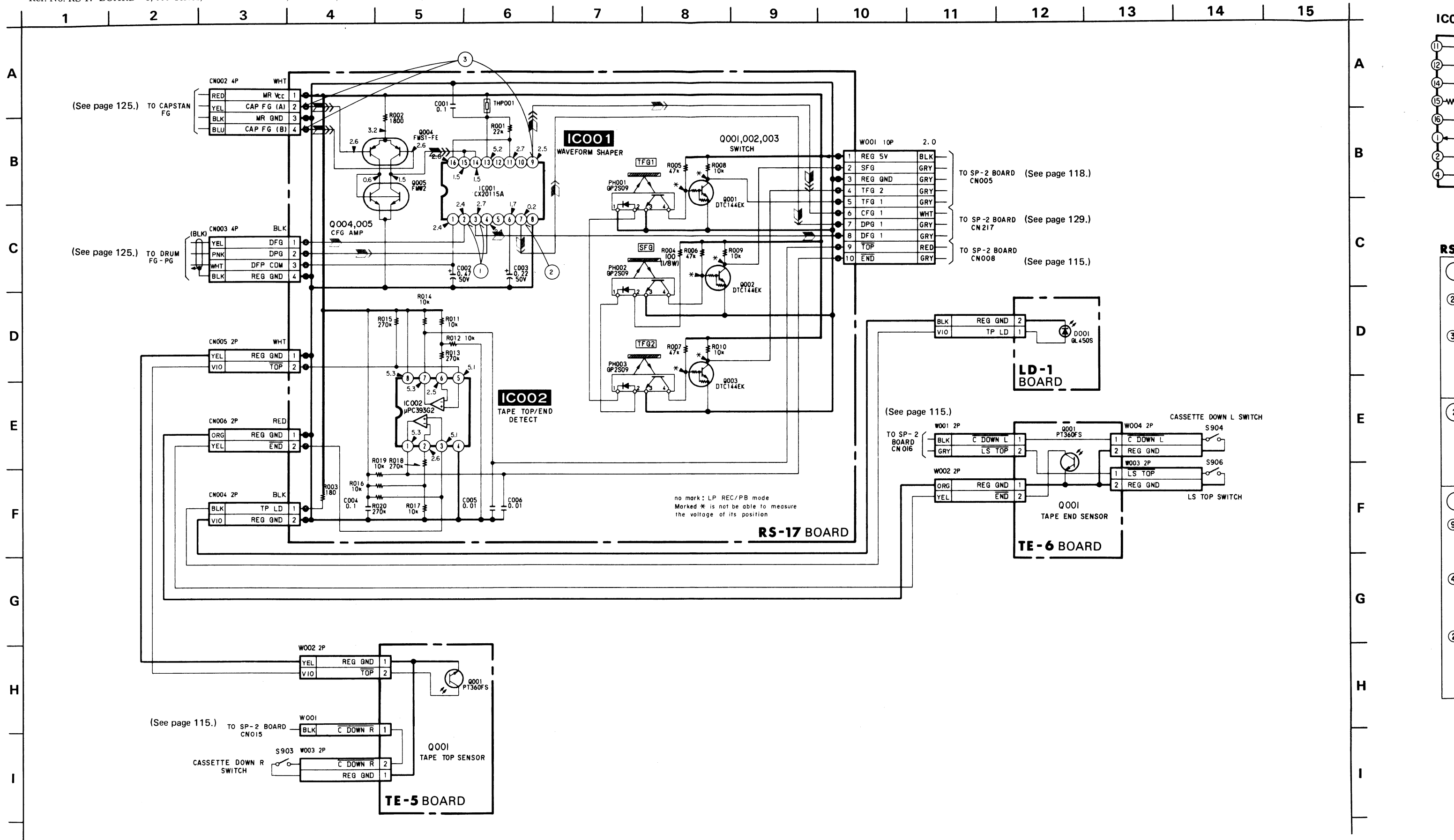
no mark: LP REC/PB mode
Marked * is not be able to measure
the voltage of its position

TE-6 BOARD

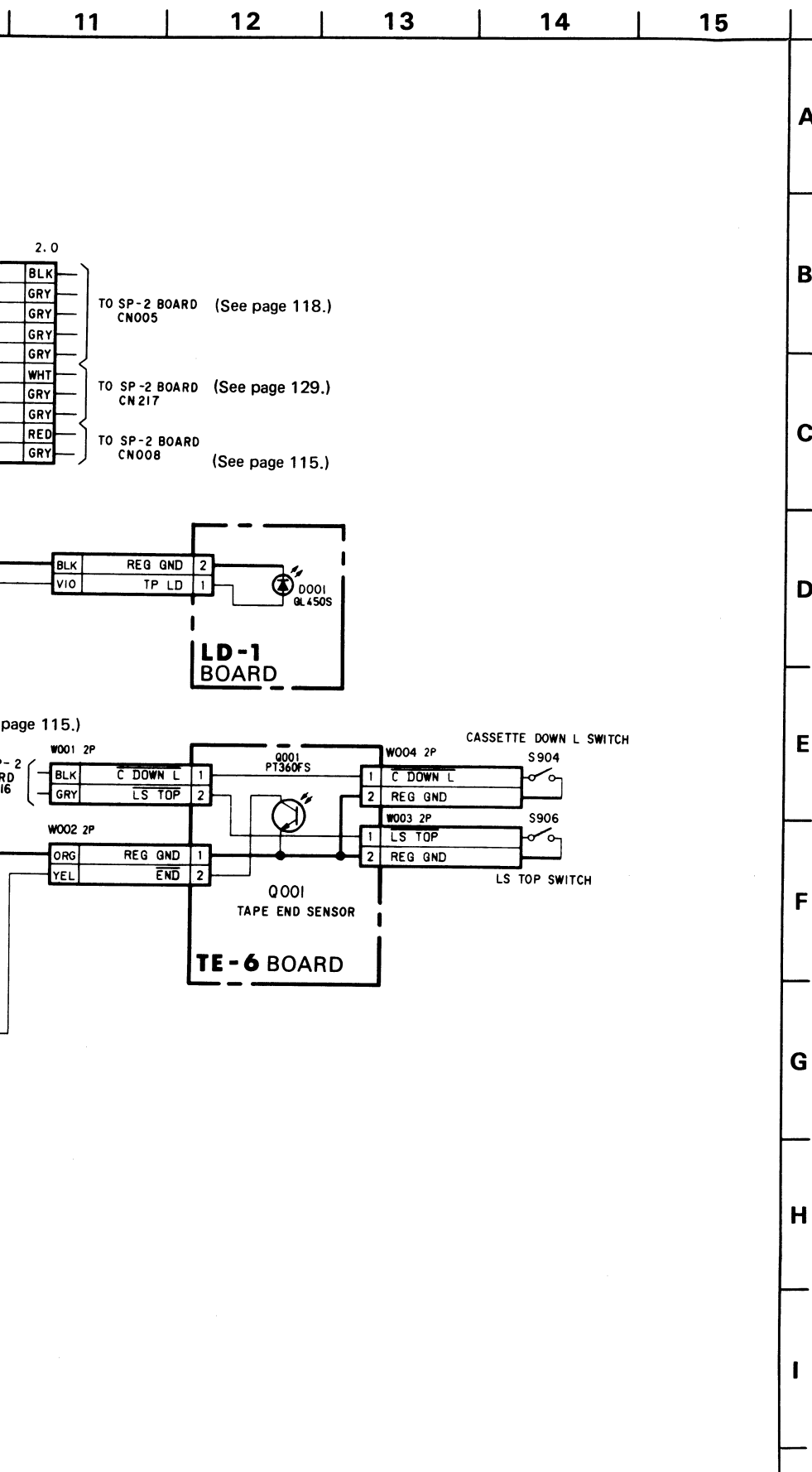


RS-17 (REEL SENSOR), TE-5 (TAPE-TOP SENSOR), TE-6 (TAPE-END SENSOR), LD-1 (TAPE SENSOR LIGHT EMISSION) SCHEMATIC DIAGRAM

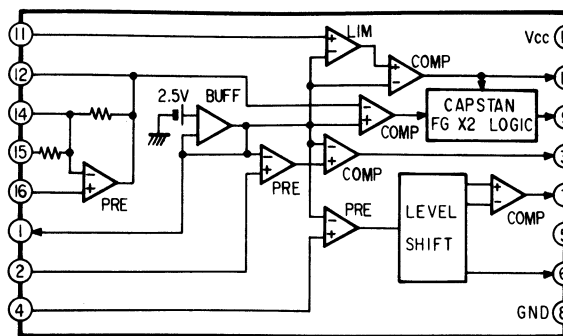
—Ref. No. RS-17 BOARD : 5,000 series, TE-5 BOARD : 5,100 series, TE-6 BOARD : 5,200 series, LD-1 BOARD : 5,300 series—



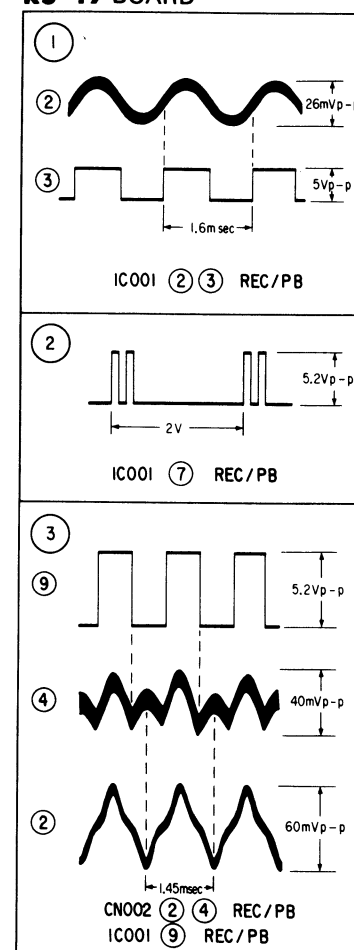
SERVO (2) SERVO (2)



IC001 CX20115A



RS-17 BOARD



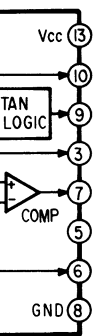
Note:

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF.
50V or less are not indicated except for electrolytic, and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- — : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

When indicating parts by reference number, please include the board name.

• Signal path

| | REC | REC/PB | PB |
|---------------------------------|-----|--------|----|
| Drum speed servo | | ➡ | |
| Drum phase servo | | ➡➡ | |
| Capstan servo (speed and phase) | | ➡➡➡ | |



Note:

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
50V or less are not indicated except for electrolytic and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- — : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

When indicating parts by reference number, please include the board name.

• Signal path

| | REC | REC/PB | PB |
|---------------------------------|-----|--------|----|
| Drum speed servo | | ➤ | |
| Drum phase servo | | ➤➤ | |
| Capstan servo (speed and phase) | | ➤➤➤ | |

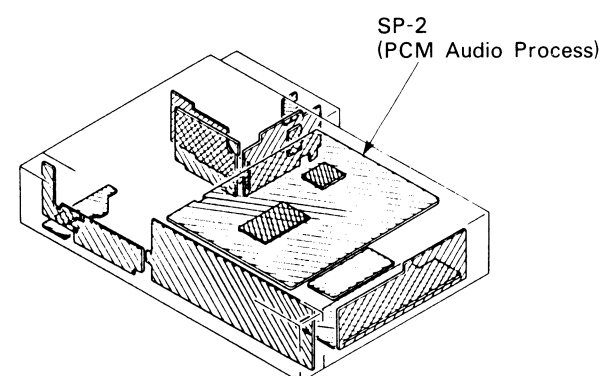
Note:

- : indicates a lead wire mounted on the component side.
- : indicates a lead wire mounted on the printed side.
- ⊗ : Through hole.
- : Pattern from the side which enables seeing.

When indicating parts by reference number, please include the board name.

Caution:

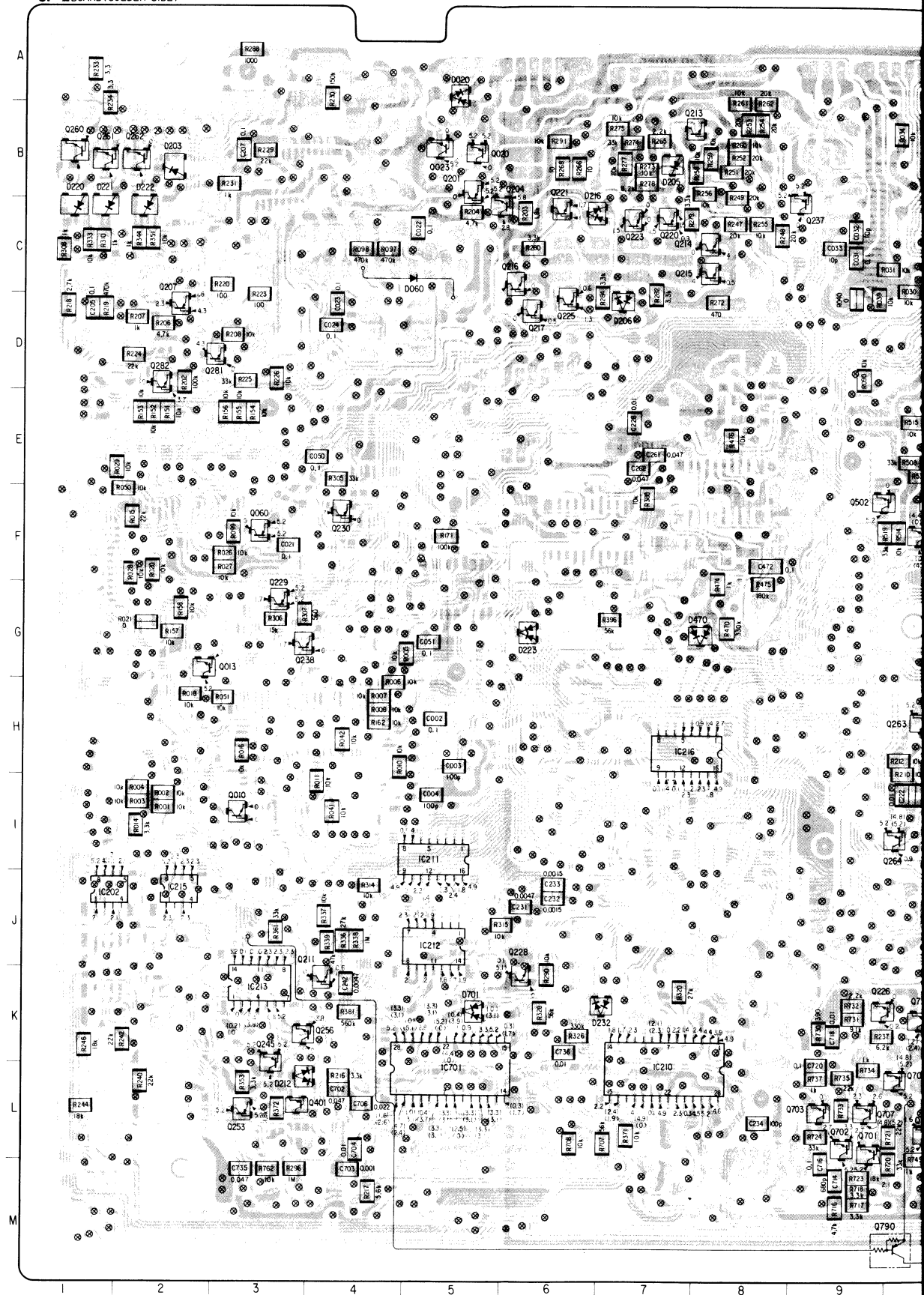
Pattern face side: Parts on the pattern face side seen from (Solder Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.



| | | | | | |
|-------|------|-------|------|-------|------|
| CN001 | D-27 | IC210 | K-7 | Q390 | J-14 |
| CN002 | K-19 | IC211 | I-5 | Q401 | L-4 |
| CN003 | M-32 | IC212 | J-5 | Q480 | G-25 |
| CN004 | A-27 | IC213 | K-3 | Q481 | G-25 |
| CN005 | A-22 | IC215 | J-2 | Q482 | F-25 |
| CN006 | A-23 | IC218 | F-6 | Q500 | F-10 |
| CN007 | A-28 | IC220 | F-27 | Q501 | F-10 |
| CN008 | G-32 | IC500 | E-23 | Q502 | F-9 |
| CN009 | A-24 | IC501 | C-22 | Q601 | C-13 |
| CN010 | E-28 | IC502 | J-15 | Q602 | C-14 |
| CN011 | L-20 | IC600 | B-19 | Q604 | B-14 |
| CN012 | M-14 | IC601 | H-20 | Q605 | B-21 |
| CN013 | L-22 | IC602 | E-20 | Q606 | J-18 |
| CN014 | K-20 | IC603 | F-20 | Q701 | L-9 |
| CN015 | A-24 | IC604 | D-14 | Q702 | L-9 |
| CN016 | H-32 | IC605 | E-18 | Q703 | L-9 |
| CN017 | C-29 | IC606 | H-18 | Q704 | M-24 |
| CN018 | A-28 | IC701 | K-5 | Q705 | K-23 |
| CN019 | E-30 | IC703 | L-30 | Q706 | K-24 |
| CN020 | E-32 | | | Q707 | L-9 |
| CN021 | E-31 | Q010 | I-3 | Q708 | L-10 |
| CN022 | C-28 | Q011 | H-31 | Q709 | L-25 |
| CN027 | A-26 | Q012 | H-31 | Q710 | M-21 |
| CN212 | B-31 | Q013 | G-3 | Q711 | L-10 |
| CN213 | A-29 | Q014 | D-10 | Q712 | K-11 |
| CN214 | L-25 | Q015 | D-10 | Q713 | L-10 |
| CN215 | J-22 | Q020 | B-5 | Q714 | L-23 |
| CN216 | L-21 | Q021 | B-28 | Q715 | L-22 |
| CN217 | G-23 | Q022 | B-28 | Q716 | M-10 |
| CN601 | B-22 | Q023 | B-5 | Q717 | K-10 |
| CN603 | M-12 | Q054 | I-22 | Q777 | J-29 |
| CN605 | F-22 | Q055 | I-22 | | |
| CN606 | F-23 | Q060 | F-3 | RV201 | J-26 |
| CN607 | B-22 | Q085 | G-16 | RV202 | J-26 |
| | | Q086 | H-16 | RV203 | J-26 |
| D025 | A-5 | Q090 | D-23 | RV204 | J-26 |
| D021 | A-28 | Q091 | D-24 | RV206 | K-25 |
| D060 | C-4 | Q201 | B-5 | RV208 | K-25 |
| D082 | G-16 | Q202 | B-28 | RV209 | D-25 |
| D203 | B-2 | Q203 | B-27 | RV210 | M-29 |
| D205 | B-7 | Q204 | B-6 | RV601 | B-20 |
| D206 | D-7 | Q205 | K-26 | RV602 | F-18 |
| D208 | H-24 | Q206 | C-30 | RV603 | C-21 |
| D209 | I-26 | Q207 | C-2 | RV604 | B-21 |
| D211 | K-27 | Q208 | D-32 | RV701 | M-27 |
| D212 | L-3 | Q209 | D-30 | | |
| D213 | I-22 | Q210 | H-11 | TP001 | G-29 |
| D214 | J-30 | Q211 | K-4 | TP002 | I-30 |
| D215 | D-27 | Q212 | A-26 | TP003 | E-32 |
| D216 | C-6 | Q213 | B-7 | TP004 | G-29 |
| D217 | I-24 | Q214 | C-7 | TP005 | G-29 |
| D218 | K-30 | Q215 | C-7 | TP201 | I-23 |
| D220 | B-1 | Q216 | C-6 | TP202 | G-24 |
| D221 | B-1 | Q217 | D-6 | TP203 | G-22 |
| D222 | B-2 | Q218 | C-26 | TP204 | G-22 |
| D223 | G-6 | Q219 | C-27 | TP205 | G-22 |
| D226 | K-30 | Q220 | C-7 | TP206 | J-21 |
| D227 | H-11 | Q221 | B-6 | TP207 | G-24 |
| D230 | D-31 | Q222 | C-26 | TP208 | K-29 |
| D232 | K-7 | Q223 | C-7 | TP209 | L-22 |
| D233 | E-27 | Q224 | C-27 | TP210 | B-27 |
| D390 | F-27 | Q225 | D-6 | TP211 | B-27 |
| D391 | J-14 | Q226 | K-9 | TP212 | J-27 |
| D392 | I-10 | Q227 | K-10 | TP213 | K-28 |
| D393 | I-10 | Q228 | J-6 | TP214 | K-25 |
| D501 | F-11 | Q229 | F-3 | TP215 | J-24 |
| D502 | H-13 | Q230 | F-4 | TP216 | K-26 |
| D600 | B-13 | Q232 | K-23 | TP217 | K-26 |
| D601 | H-14 | Q233 | K-30 | TP219 | M-26 |
| D603 | I-14 | Q235 | H-11 | TP220 | I-30 |
| D604 | H-14 | Q237 | C-9 | TP221 | L-27 |
| D701 | K-5 | Q238 | G-3 | TP222 | J-29 |
| D702 | K-23 | Q240 | E-26 | TP223 | L-26 |
| | | Q242 | K-12 | TP224 | J-23 |
| IC001 | H-30 | Q245 | K-3 | TP225 | E-27 |
| IC002 | F-31 | Q246 | H-28 | TP226 | G-24 |
| IC003 | C-23 | Q248 | I-31 | TP227 | L-27 |
| IC004 | F-29 | Q249 | K-31 | TP228 | I-30 |
| IC005 | F-28 | Q250 | K-31 | TP229 | G-28 |
| IC007 | C-29 | Q251 | L-31 | TP230 | M-26 |
| IC008 | D-29 | Q252 | L-30 | TP231 | L-21 |
| IC009 | D-30 | Q253 | L-3 | TP232 | C-32 |
| IC010 | L-18 | Q254 | K-31 | TP233 | C-31 |
| IC011 | H-17 | Q256 | K-4 | TP234 | C-31 |
| IC201 | E-26 | Q260 | B-1 | TP235 | L-25 |
| IC202 | J-1 | Q261 | B-1 | TP236 | M-30 |
| IC204 | H-23 | Q262 | B-2 | TP237 | I-32 |
| IC205 | K-21 | Q263 | H-10 | TP238 | E-25 |
| IC206 | D-32 | Q264 | I-10 | TP239 | J-31 |
| IC207 | B-30 | Q280 | C-31 | TP240 | E-26 |
| IC208 | B-32 | Q281 | D-2 | TP241 | E-26 |
| IC209 | B-26 | Q282 | D-2 | TP242 | E-26 |

| | |
|-------|------|
| TP603 | G-20 |
| TP604 | D-18 |
| TP607 | G-22 |
| TP608 | C-21 |
| TP609 | E-18 |

SP-2 BOARD (SOLDER SIDE)

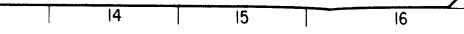


—Ref. No. SP-2 BOARD : 4, 000 series—

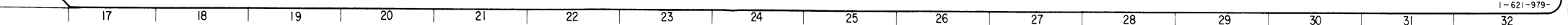
G-20
D-18
G-22
C-21
E-18

```
no mark    S: REZ + PE mode
           I: REI mode
           O: RB mode
Marked it as not able to measure
the voltage at the position
```





no mark : 2 REF / PB mode
 1) : 1 REF mode
 6) : 2 PB mode
 Marked * is not able to measure
 the voltage at this position

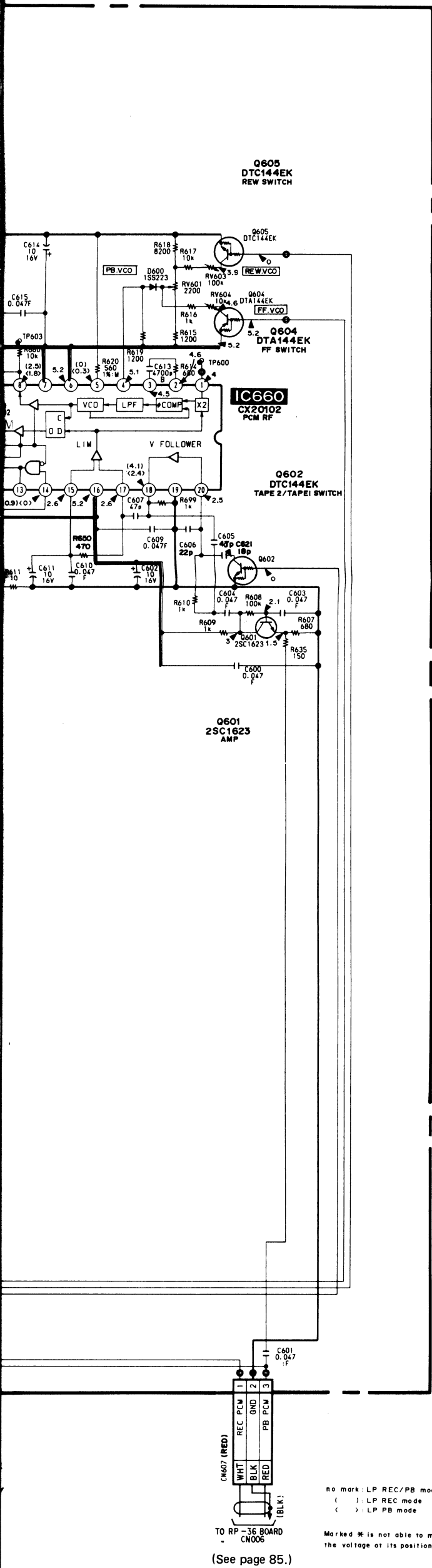


TO KM-1 BOARD

TO RB-2
BOARD



— TO SP-2 BOARD(1/3) (See page 129.)
SERVO



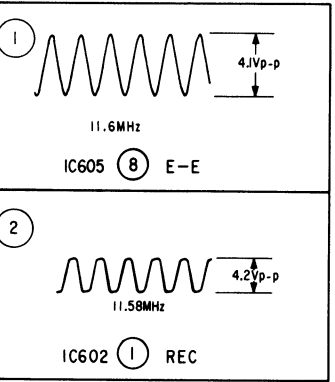
Note:

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF.
50V or less are not indicated except for electrolytic and tantalums.
- □: panel designation.
- △: internal component.
- □: adjustment for repair.
- —: B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

When indicating parts by reference number, please include the board name.

Signal path

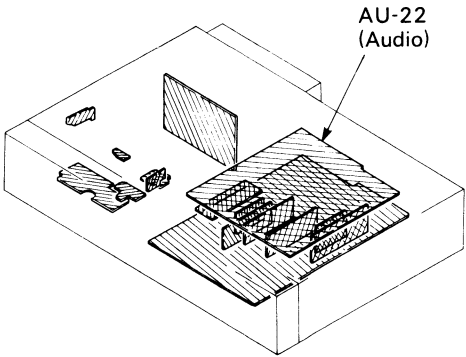
SP-2 BOARD(PCM)



AU-22 BOARD

Note:
● ○ — : indicates a lead wire mounted on the component side.
● ● — : indicates a lead wire mounted on the printed side.
● ■ — : soldering side.
● Digital transistor (AU-22:Q201,Q204,Q502) transistor with resistors.
Refer to the AU-22 board schematic diagram for digital transistor.

When indicating parts by reference number, please include the board name.



| | |
|-------|------|
| D201 | G-13 |
| D203 | A-12 |
| D701 | B-4 |
| IC101 | J-5 |
| IC201 | F-8 |
| IC203 | C-7 |
| IC301 | D-10 |
| IC302 | C-10 |
| IC303 | E-7 |
| IC304 | F-3 |
| IC401 | G-10 |
| IC402 | E-11 |
| IC403 | H-8 |
| IC404 | G-4 |
| IC501 | K-8 |
| IC503 | I-9 |
| IC601 | G-4 |
| IC602 | F-5 |
| IC701 | B-3 |
| Q201 | G-11 |
| Q203 | G-2 |
| Q204 | G-7 |
| Q208 | J-13 |
| Q209 | J-13 |
| Q210 | J-13 |
| Q211 | I-13 |
| Q212 | I-13 |
| Q213 | H-13 |
| Q301 | D-11 |
| Q302 | F-4 |
| Q401 | F-11 |
| Q402 | G-6 |
| Q502 | I-7 |
| Q801 | C-2 |
| Q802 | E-2 |
| Q803 | F-2 |
| Q821 | C-2 |
| Q822 | I-2 |
| Q823 | I-2 |

TO RB-2 BOARD
CN450

AS DATA

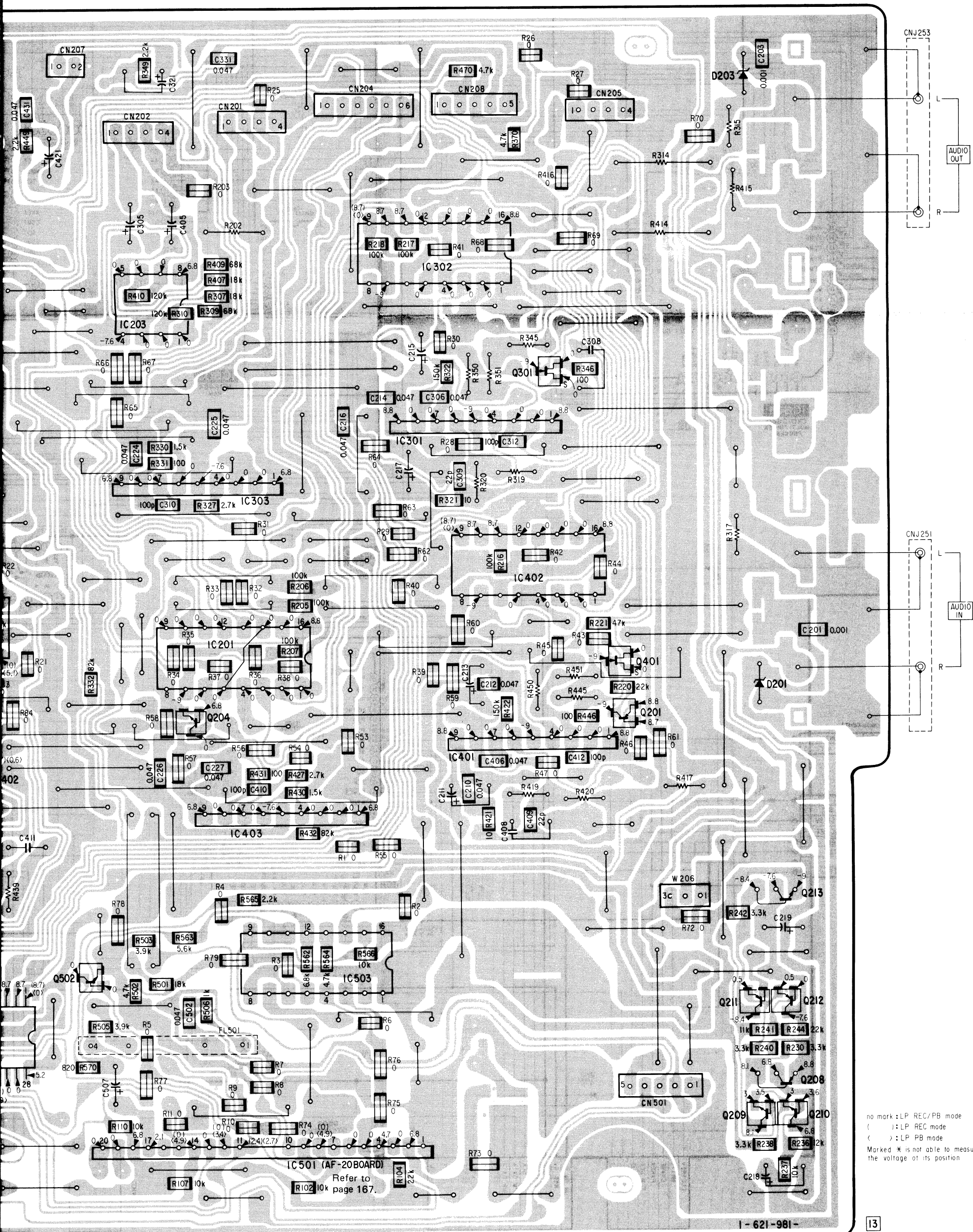
ASTROBE

AU-22(AUDIO) PRINTED WIRING BOARD

—Ref. No. AU-22 BOARD : 7,000 series—

AU-22 BOARD

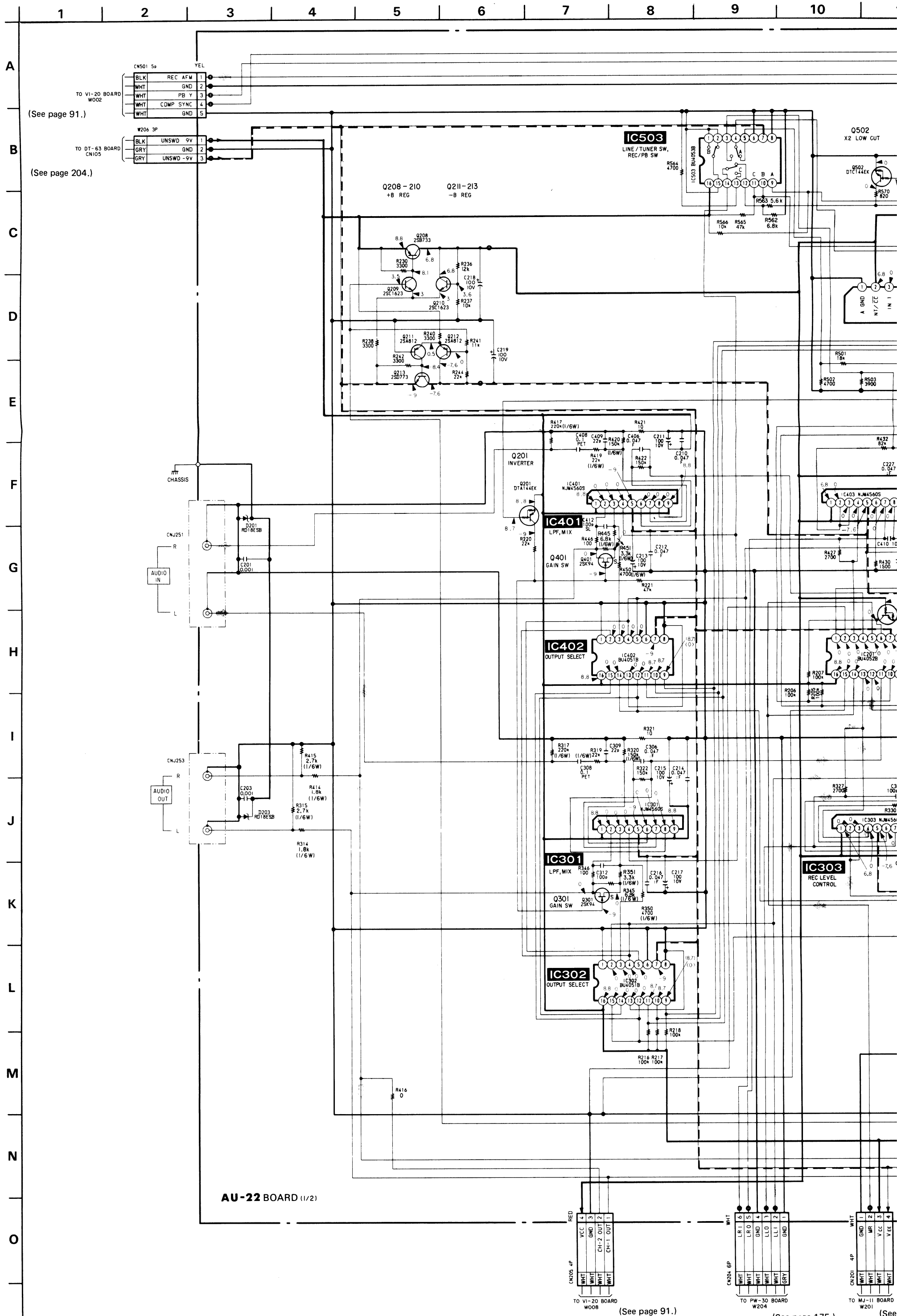


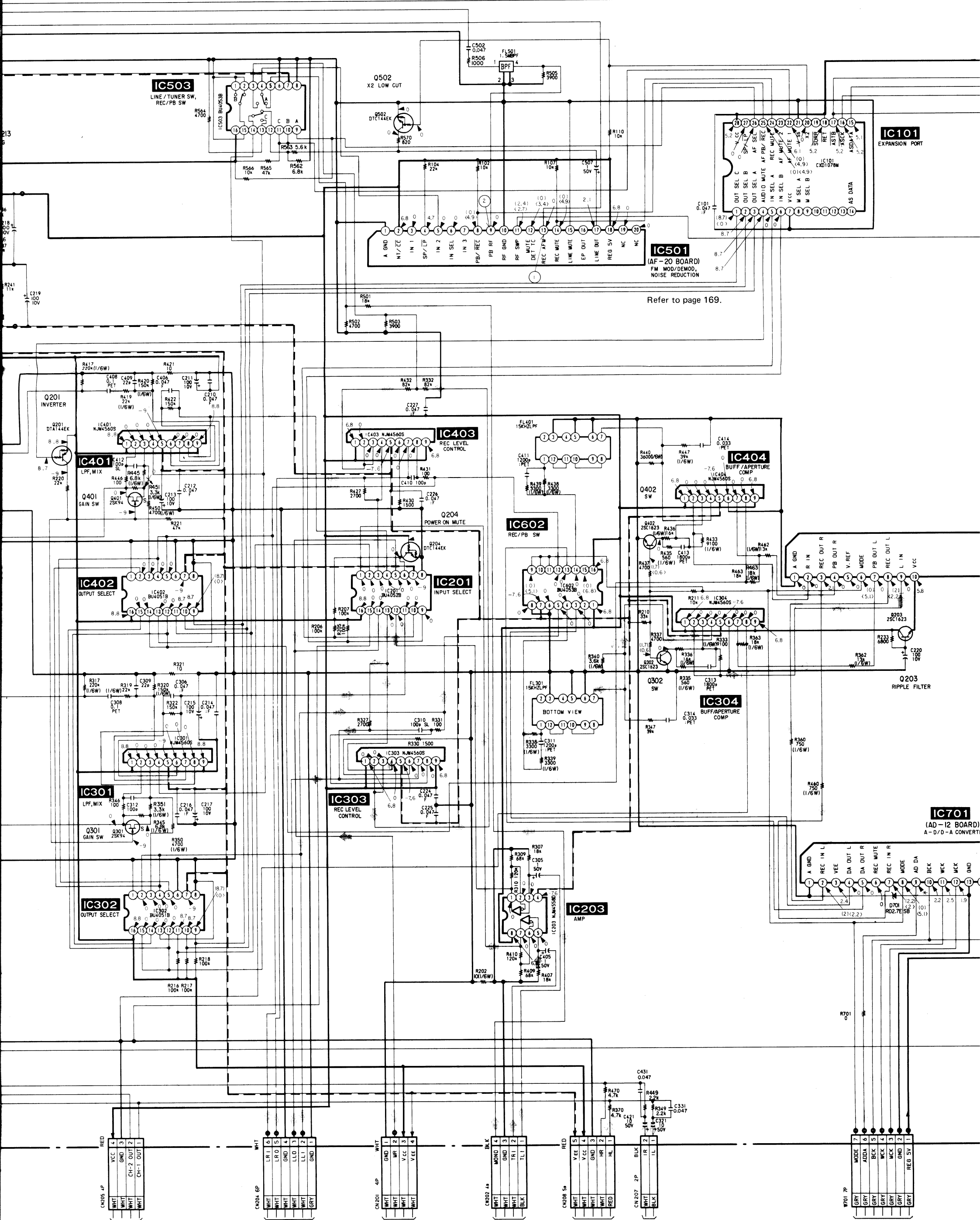


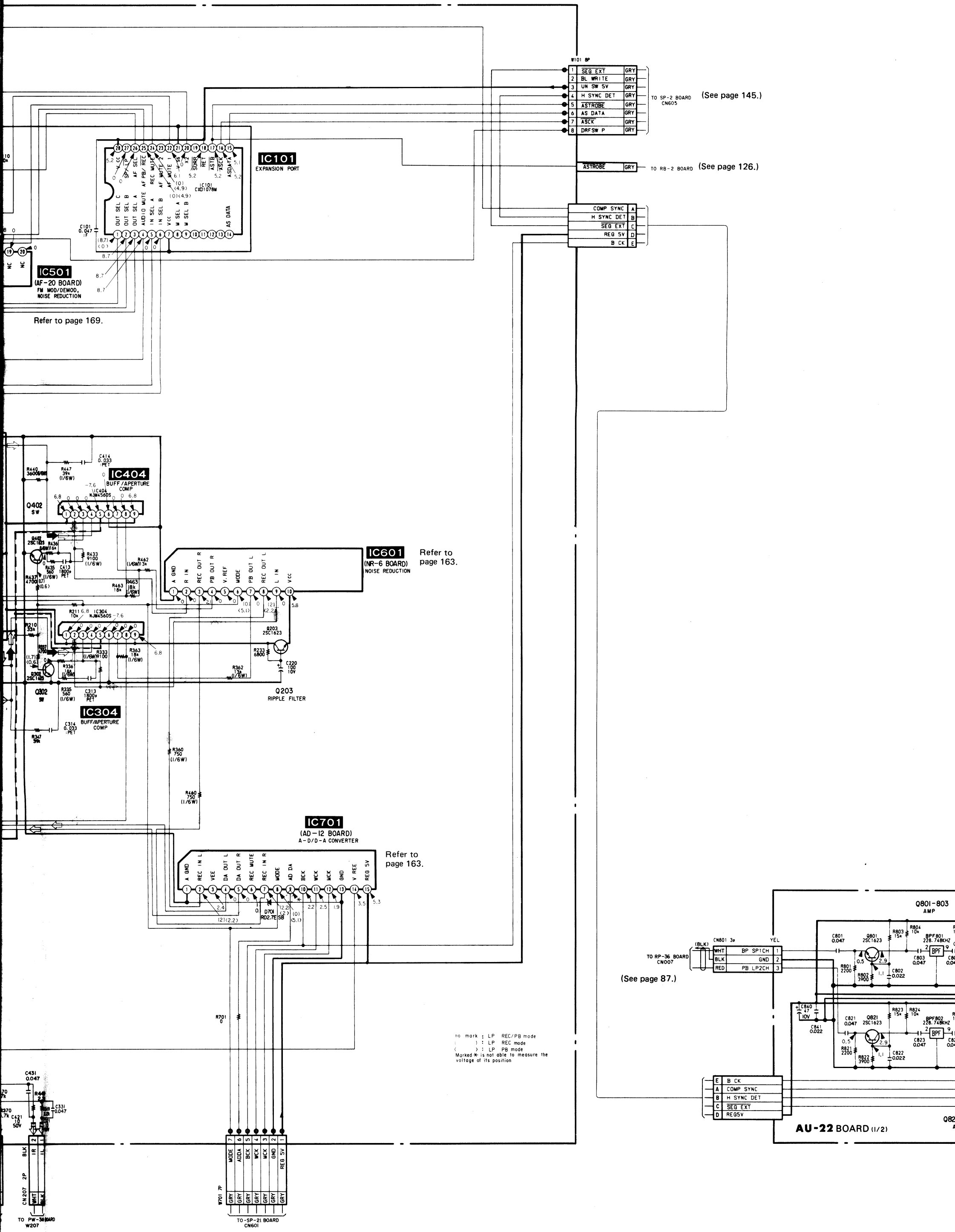
no mark: LP REC/PB mode
 (): LP REC mode
 < >: LP PB mode
 Marked * is not able to measure
 the voltage of its position

AU-22(AUDIO) SCHEMATIC DIAGRAM

—Ref. No. AU-22 BOARD : 7,000 series—

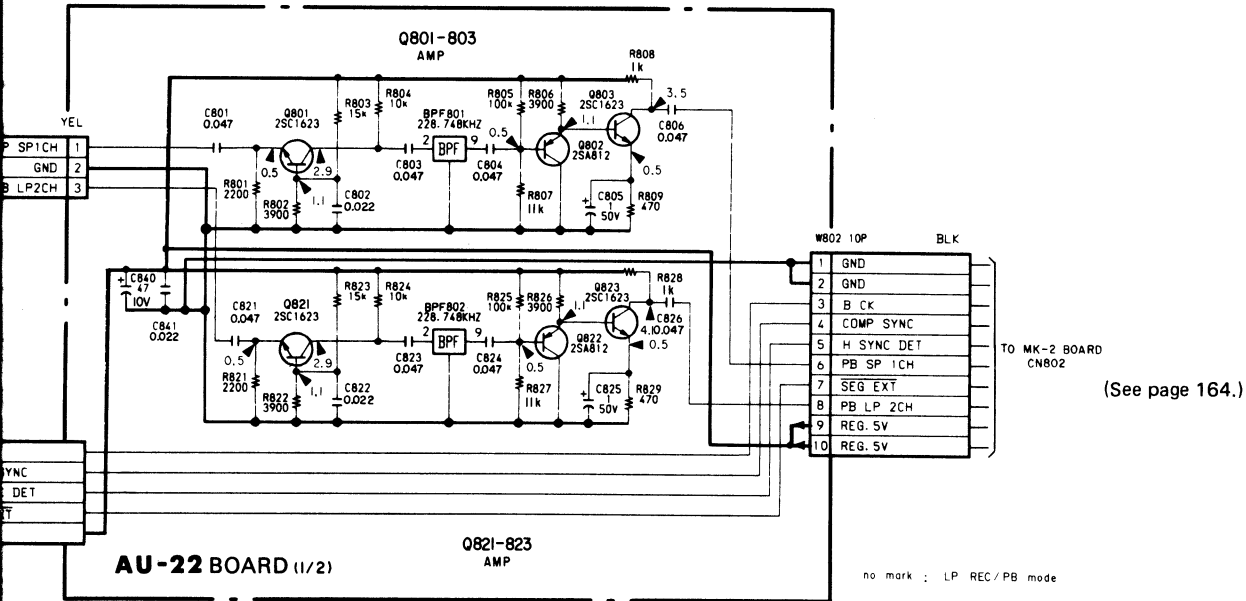






45.)

6.)



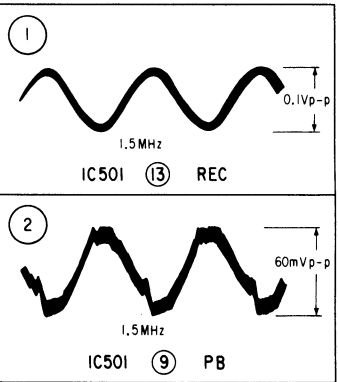
Note:

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
50V or less are not indicated except for electrolytic and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- □ : panel designation.
- △ : internal component.
- — : B + bus.
- - - - : B - bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

When indicating parts by reference number, please include the board name.

- Signal path

AU-22 BOARD



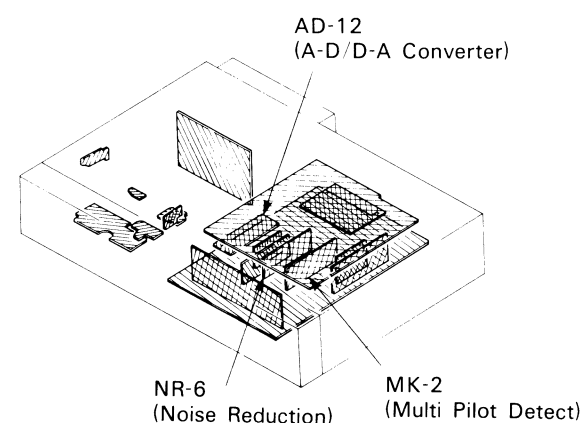
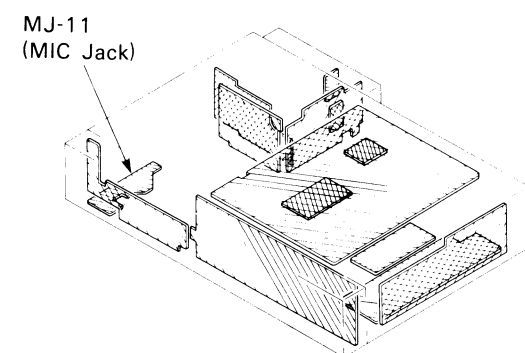
Note:

- : indicates a lead wire mounted on the component side.
- : indicates a lead wire mounted on the printed side.
- ⊗ : Through hole.
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.

When indicating parts by reference number, please include the board name.

Caution:

Pattern face side: Parts on the pattern face side seen from (Solder Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.



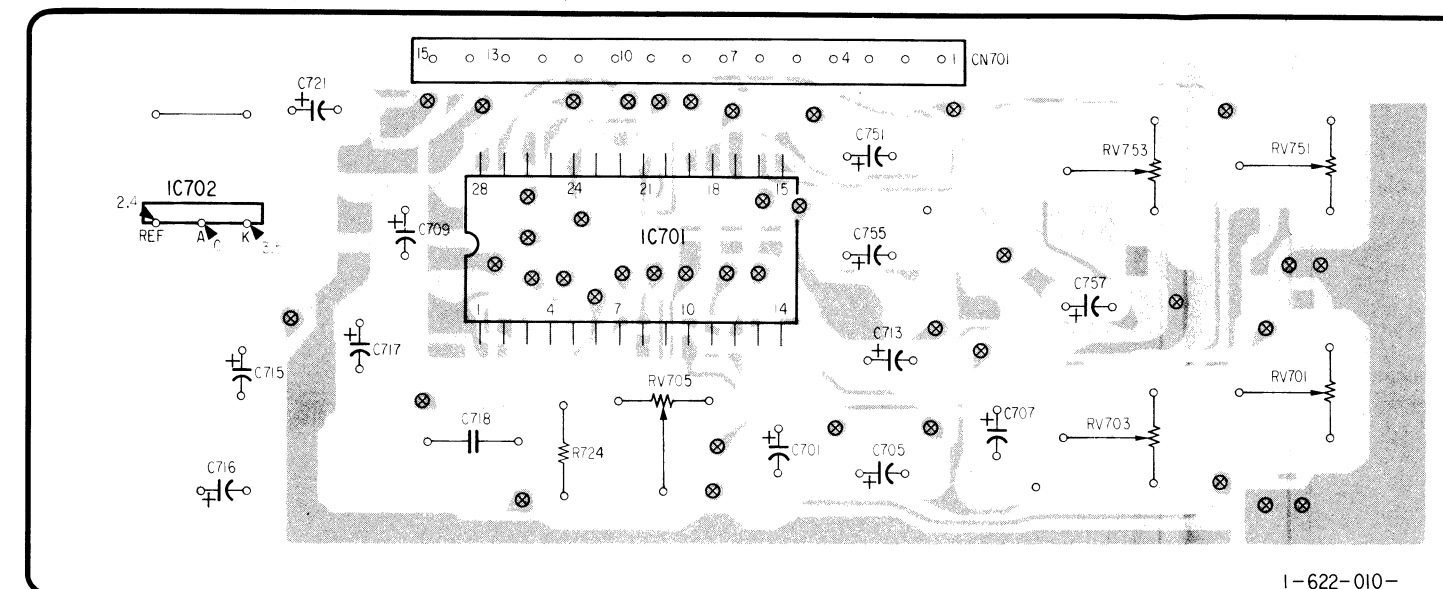
—158—

AD-12 (A-D/D-A CONVERTER), NR-6 (NOISE REDUCTION), MK-2 (MULTI PILOT DETECT), MJ-11 (MIC JACK) PRINTED WIRING

—Ref. No. AD-12, NR-6, MK-2 and MJ-11 BOARDS : 8,000 series—

IC701

AD-12 BOARD (COMPONENT SIDE)

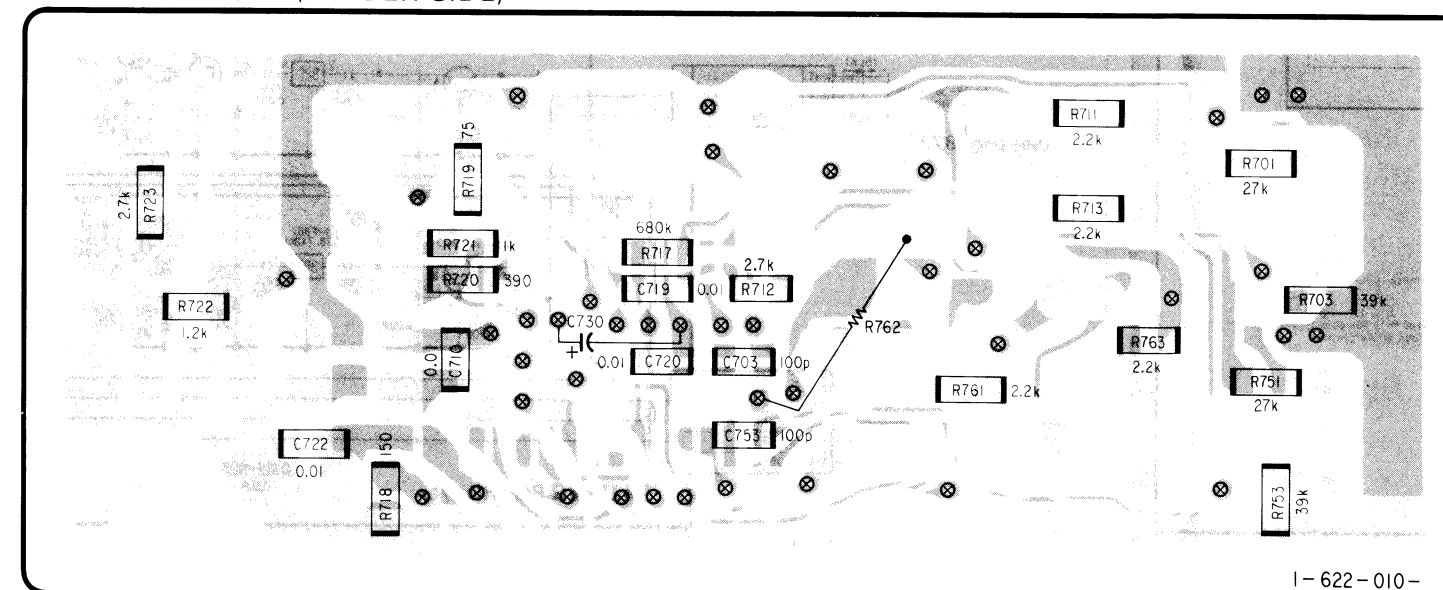


I-622-010-

11

IC701

AD-12 BOARD (SOLDER SIDE)



I-622-010-

11

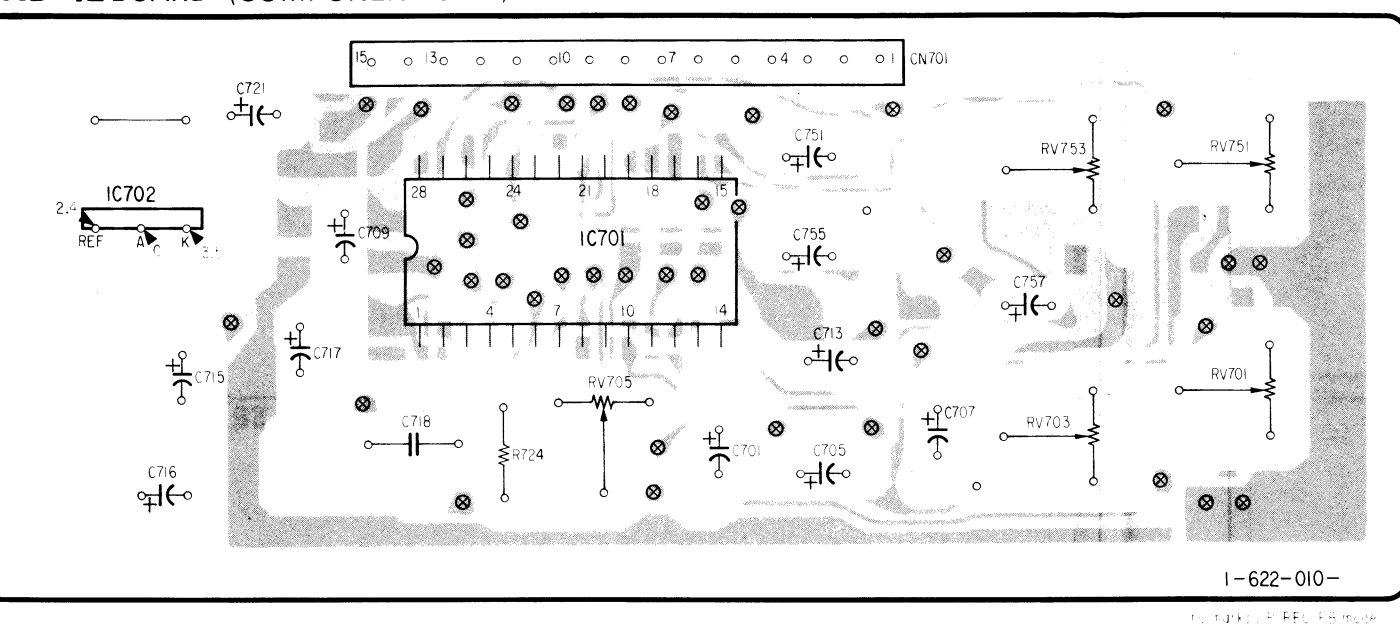
—159—

EV-S650PS

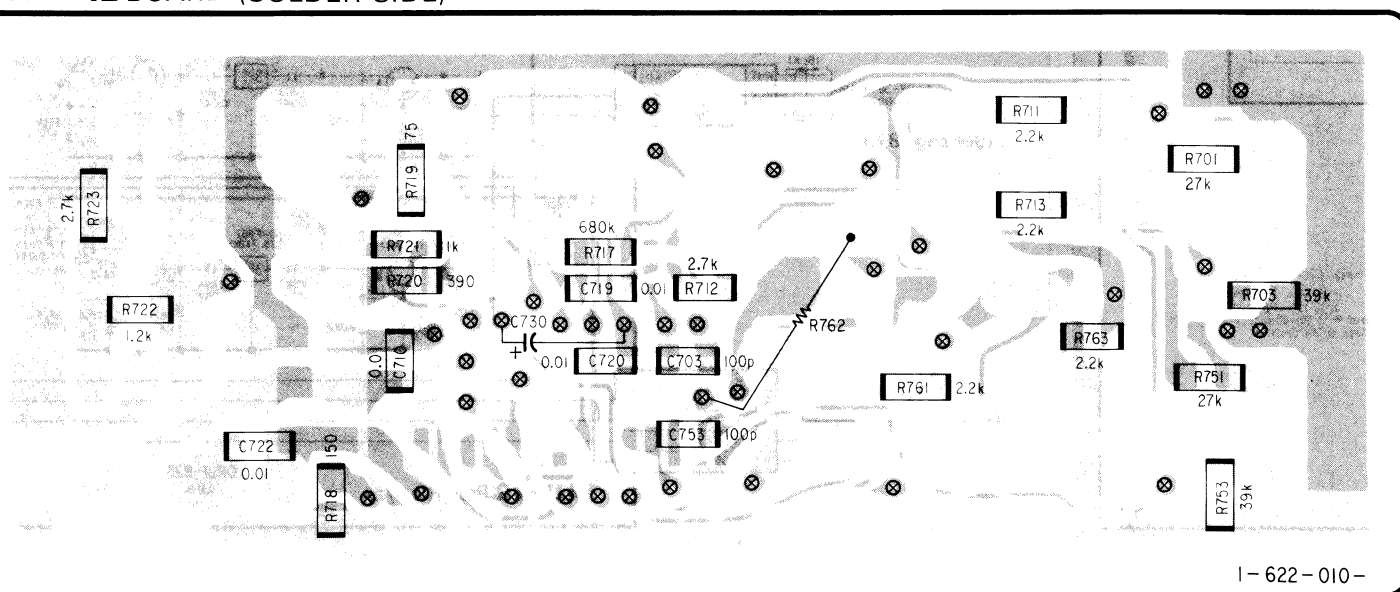
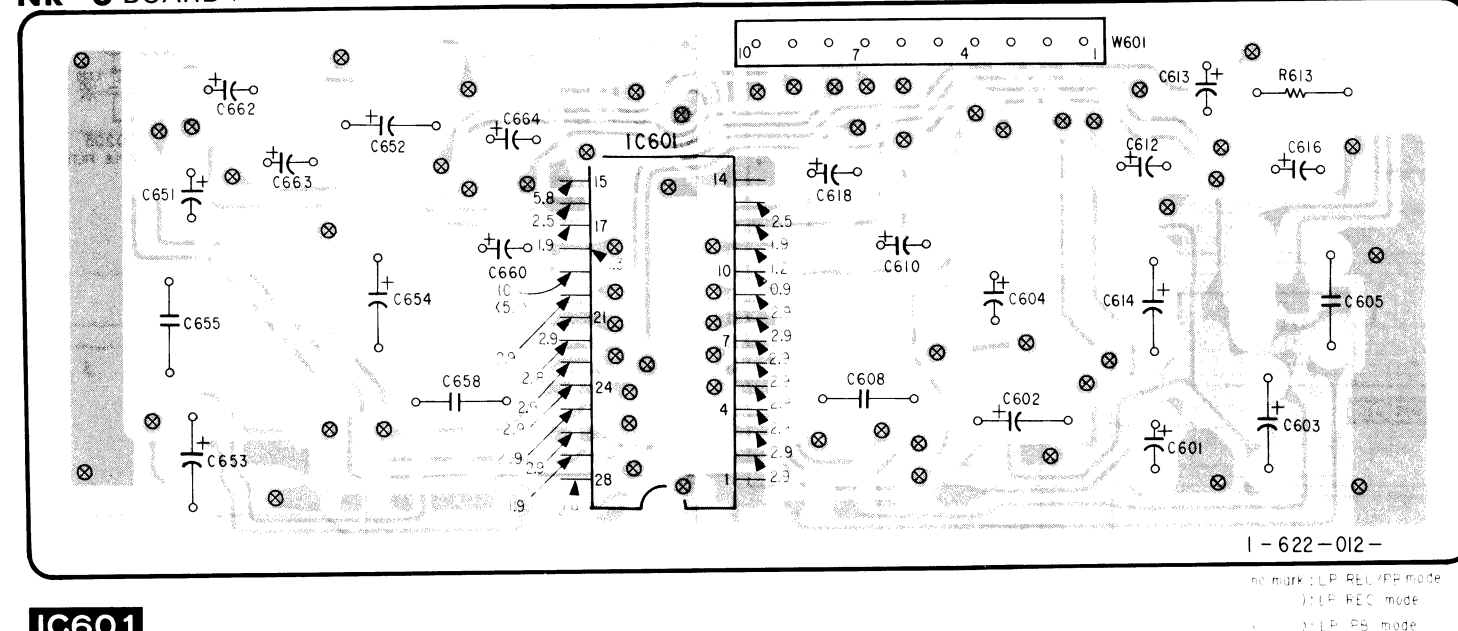
—160—

AUDIO (2)

Ref. No. AD-12, NR-6, MK-2 and MJ-11 BOARDS : 8,000 series—

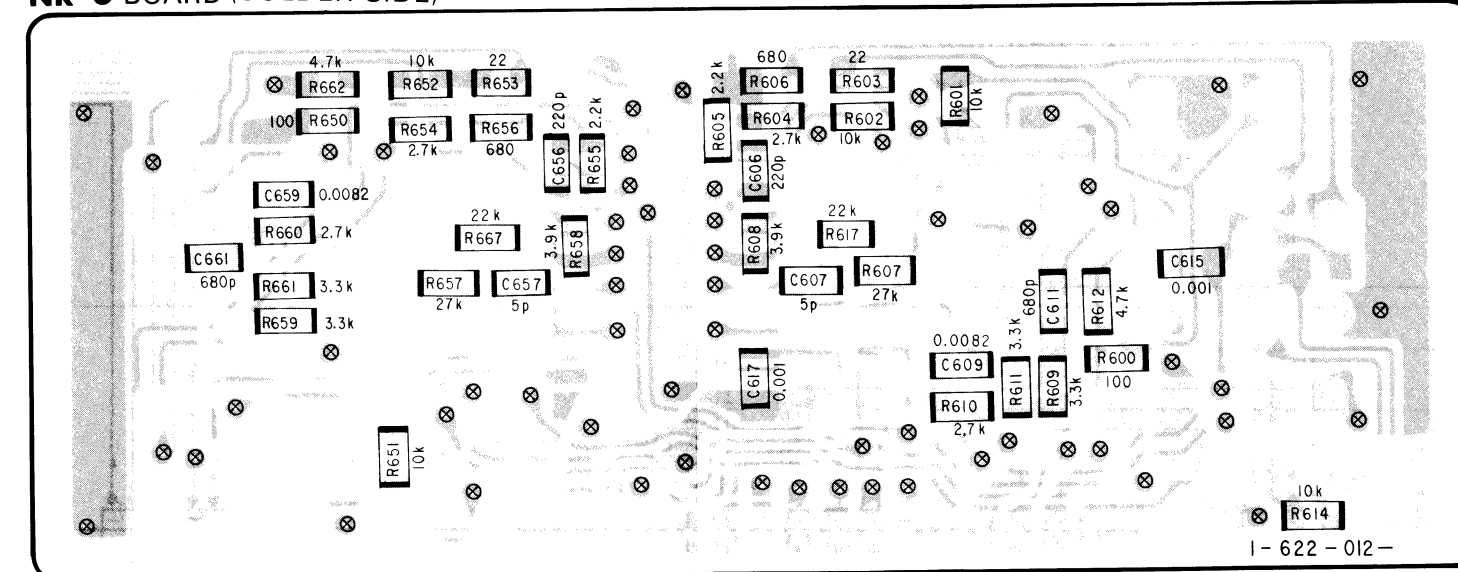
IC701**AD-12 BOARD (COMPONENT SIDE)****IC701**

AD - 12 BOARD (SOLDER SIDE)

**IC60 1****NR - 6** BOARD (COMPONENT SIDE)

IC601

NR-6 BOARD (SOLDER SIDE)



[illegible]

12

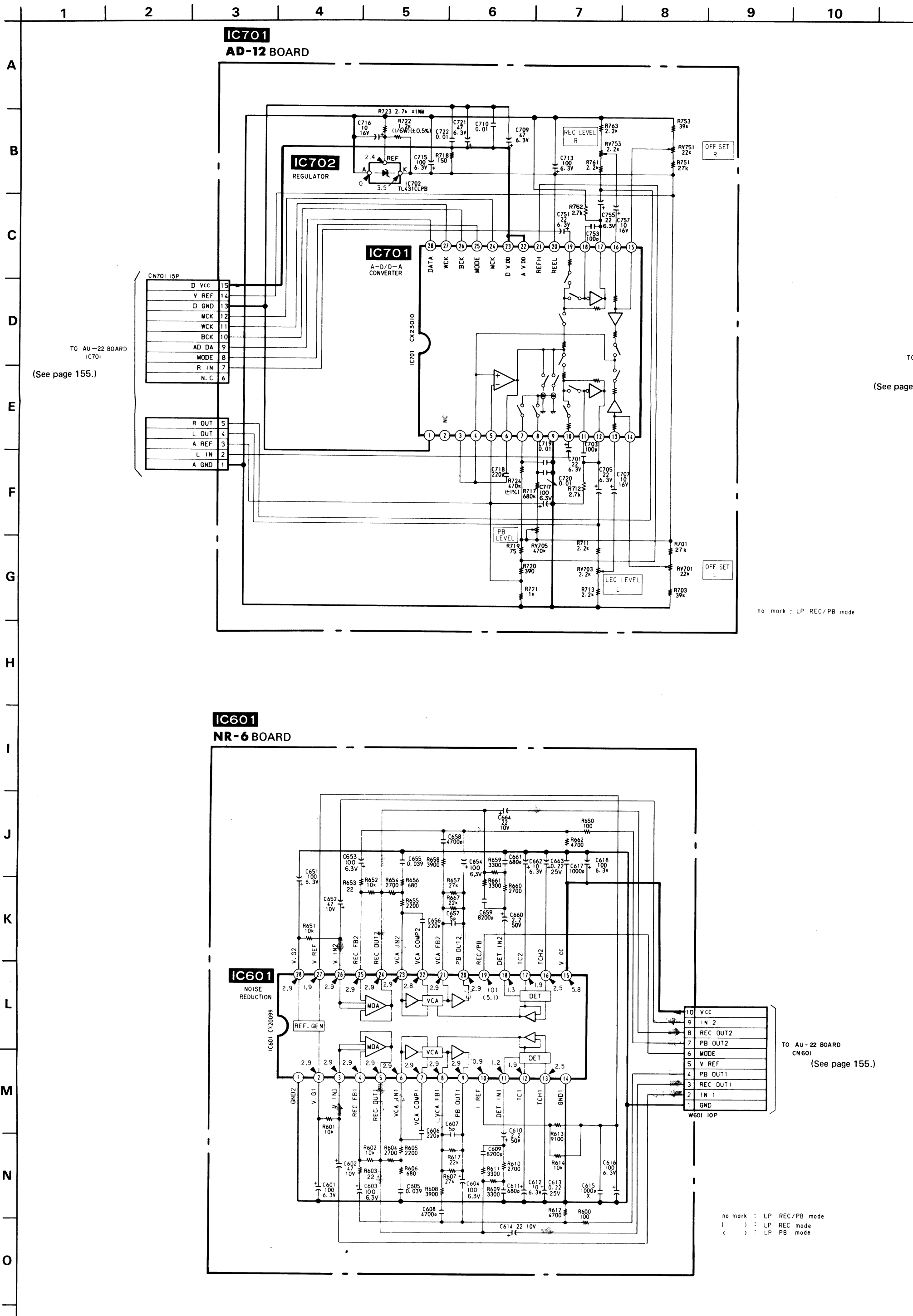
12

1

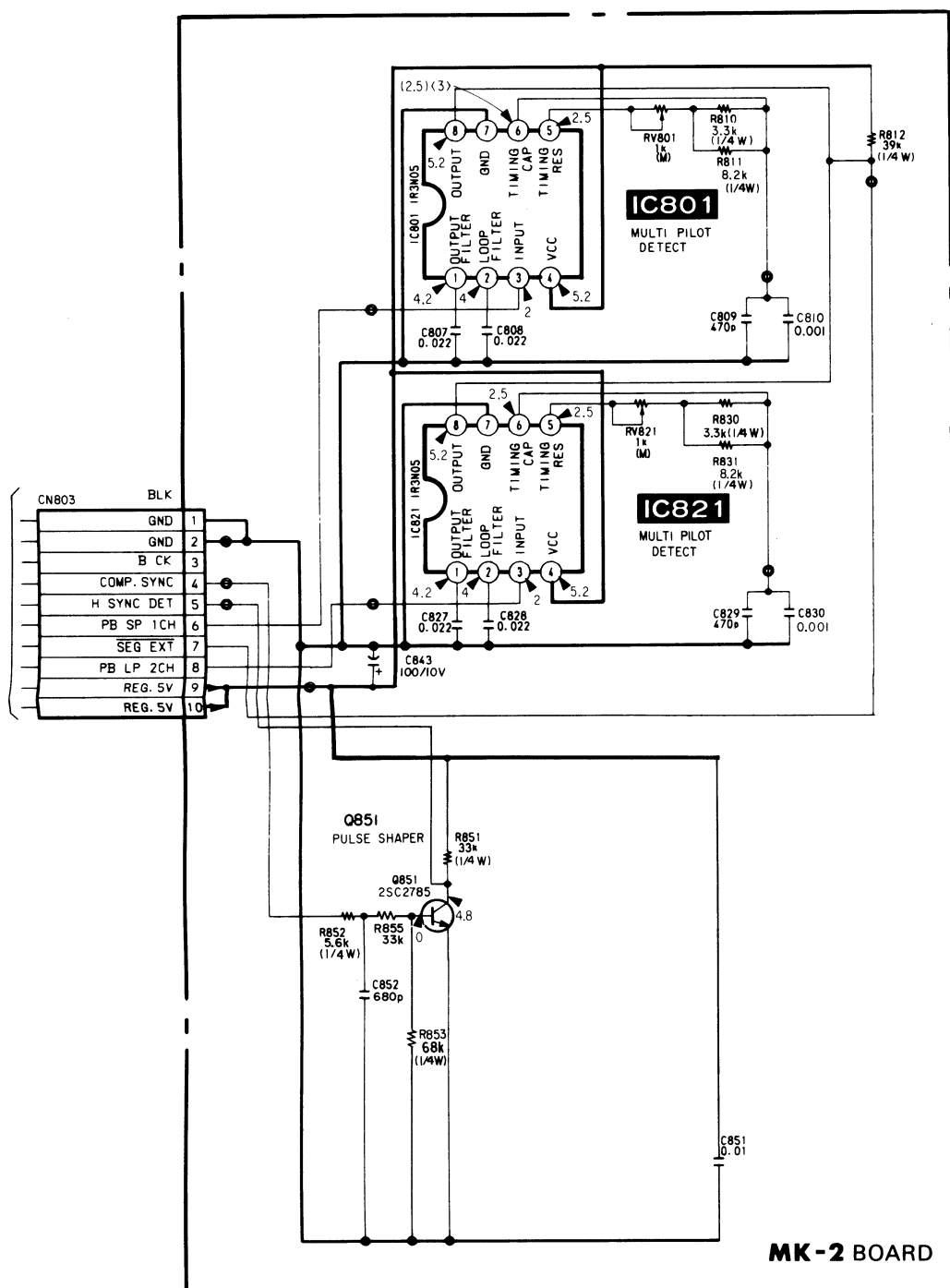
4

AD-12(A-D/D-A CONVERTER), NR-6(NOISE REDUCTION), MK-2(MULTI PILOT DETECT), MJ-11(MIC JACK) SCHEMATIC DIAGRAM

—Ref. No. AD-12, NR-6, MK-2 and MJ-11 BOARDS : 8,000 series—



TO AU-22 BOARD
W802
(See page 156.)



MK-2 BOARD

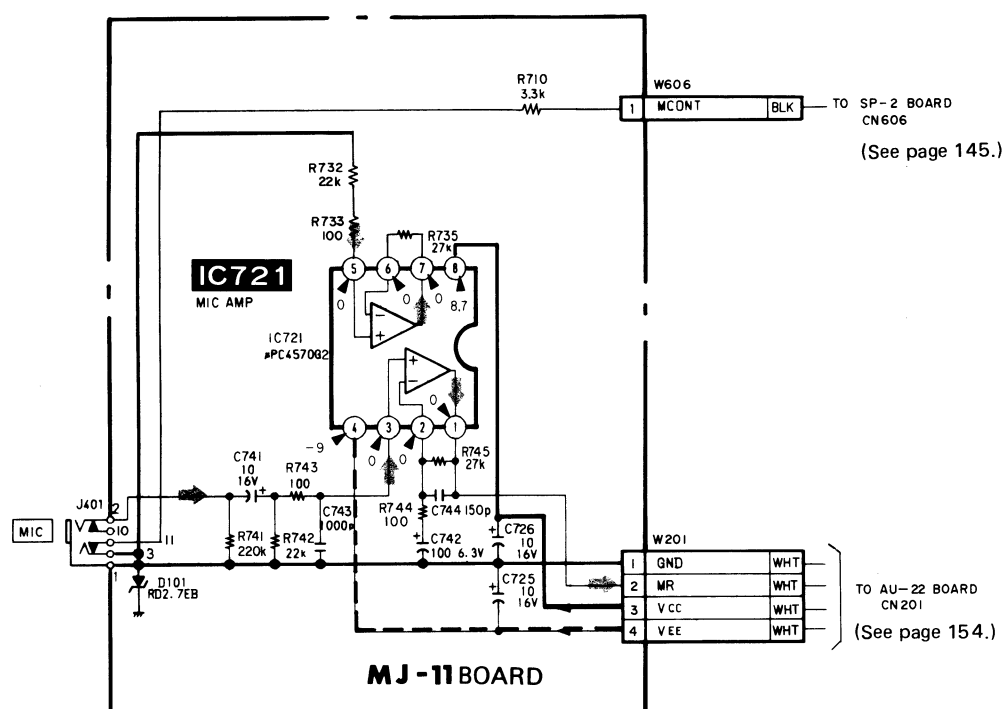
no mark : LP REC/PB mode
() : LP REC mode
< > : LP PB mode

Note:

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF.
50V or less are not indicated except for electrolytic and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- □ : panel designation.
- □ : adjustment for repair.
- — : B + bus.
- - - - : B - bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

When indicating parts by reference number, please include the board name.

- Signal path



MJ-11 BOARD

no mark : LP REC/PB mode

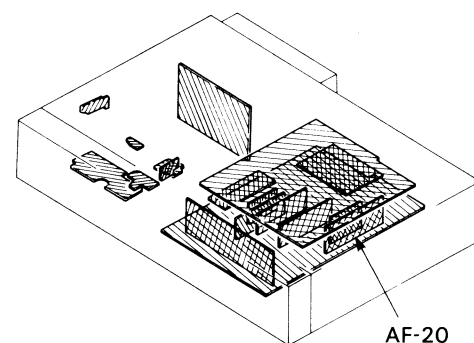
TO SP-2 BOARD
CN606
(See page 145.)

TO AU-22 BOARD
CN201
(See page 154.)

Note:

- : indicates a lead wire mounted on the component side.
- : indicates a lead wire mounted on the printed side.
- : soldering side.
- * : Pattern of conductor and silver electrode of soldering side.
- Digital transistor (AF-20:Q501,Q503) transistor with resistor refer to the AF-20 board schematic diagram for digital transistor.

When indicating parts by reference number, please include the board name.



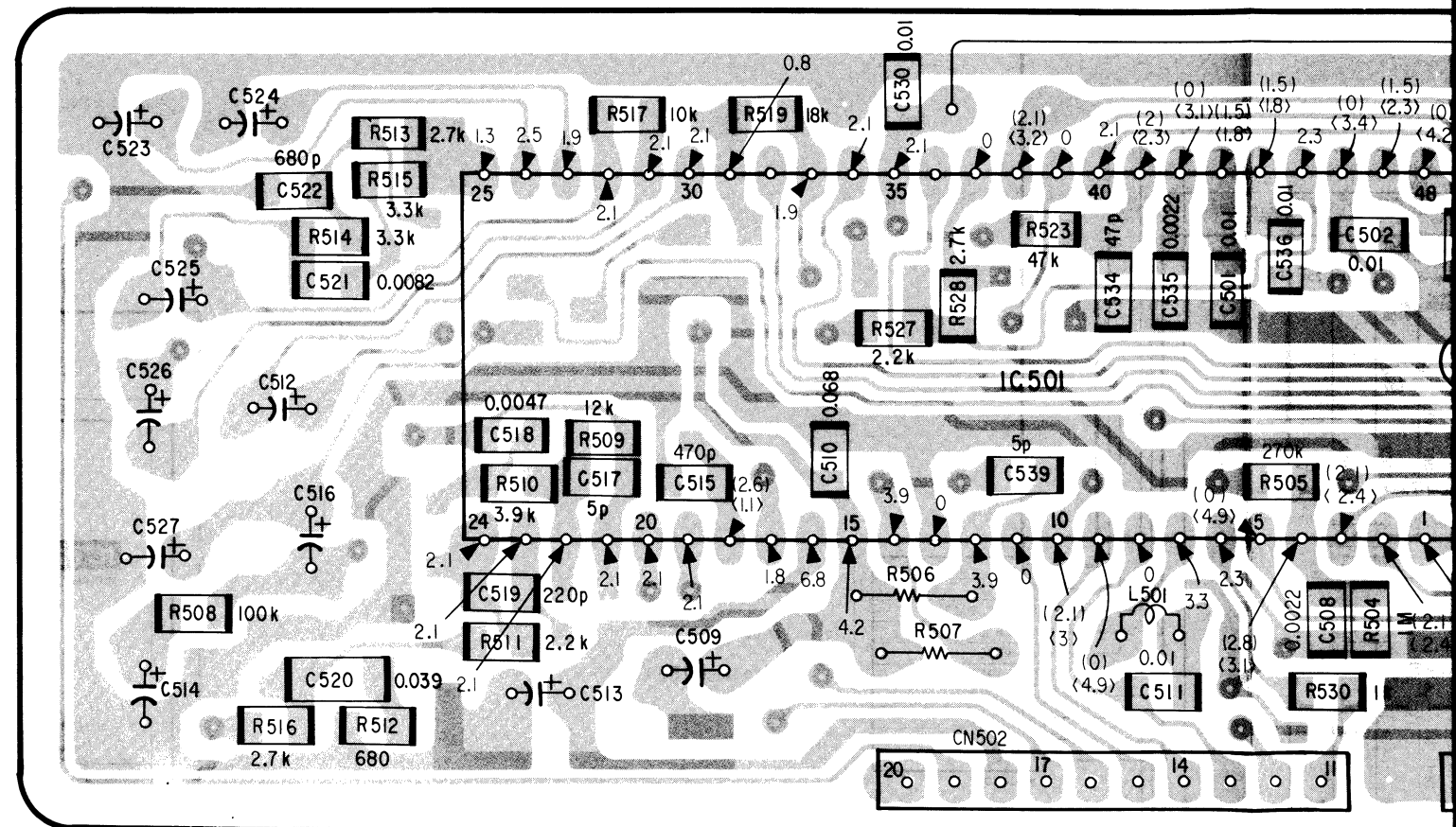
AF-20
(AFM MOD/DEMOD)
Noise Reduction

AF-20 (AFM MOD/DEMOD NOISE REDUCTION) PRINTED WIRING BOARD

—Ref. No. AF-20 BOARD : 8,000 series—

IC501

AF-20 BOARD

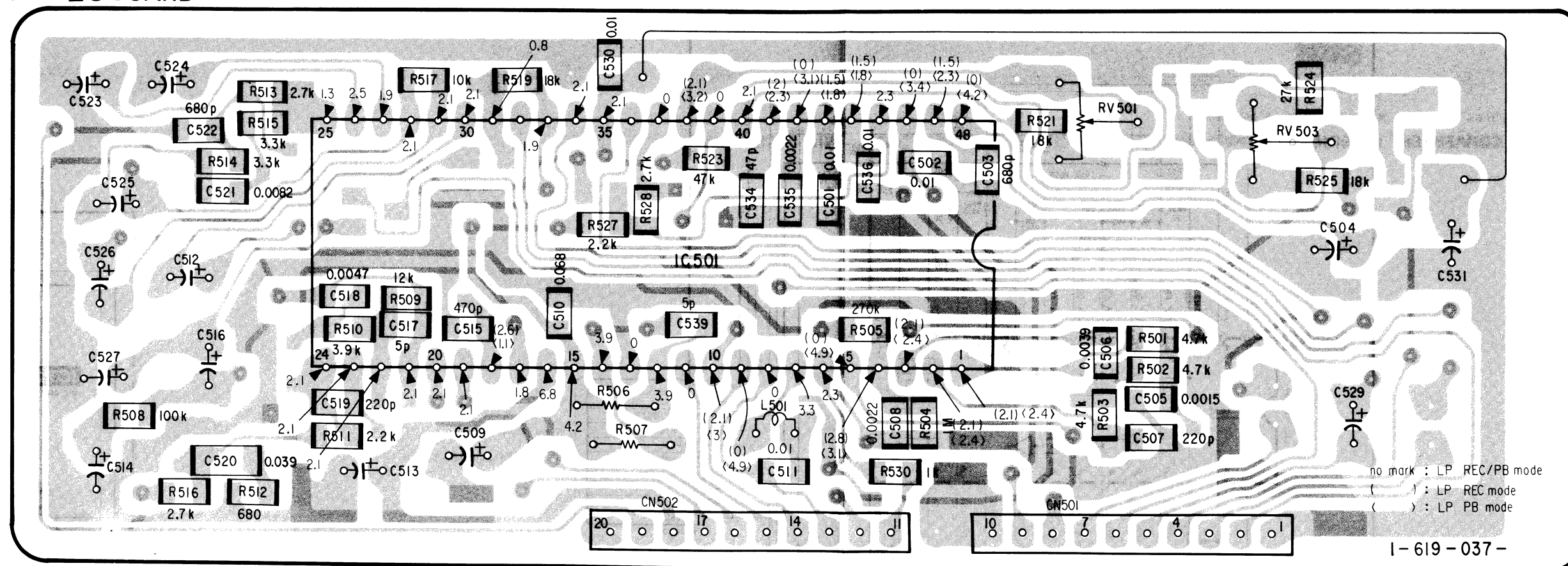


AF-20 (AFM MOD/DEMOD NOISE REDUCTION) PRINTED WIRING BOARD

—Ref. No. AF-20 BOARD : 8,000 series—

IC501

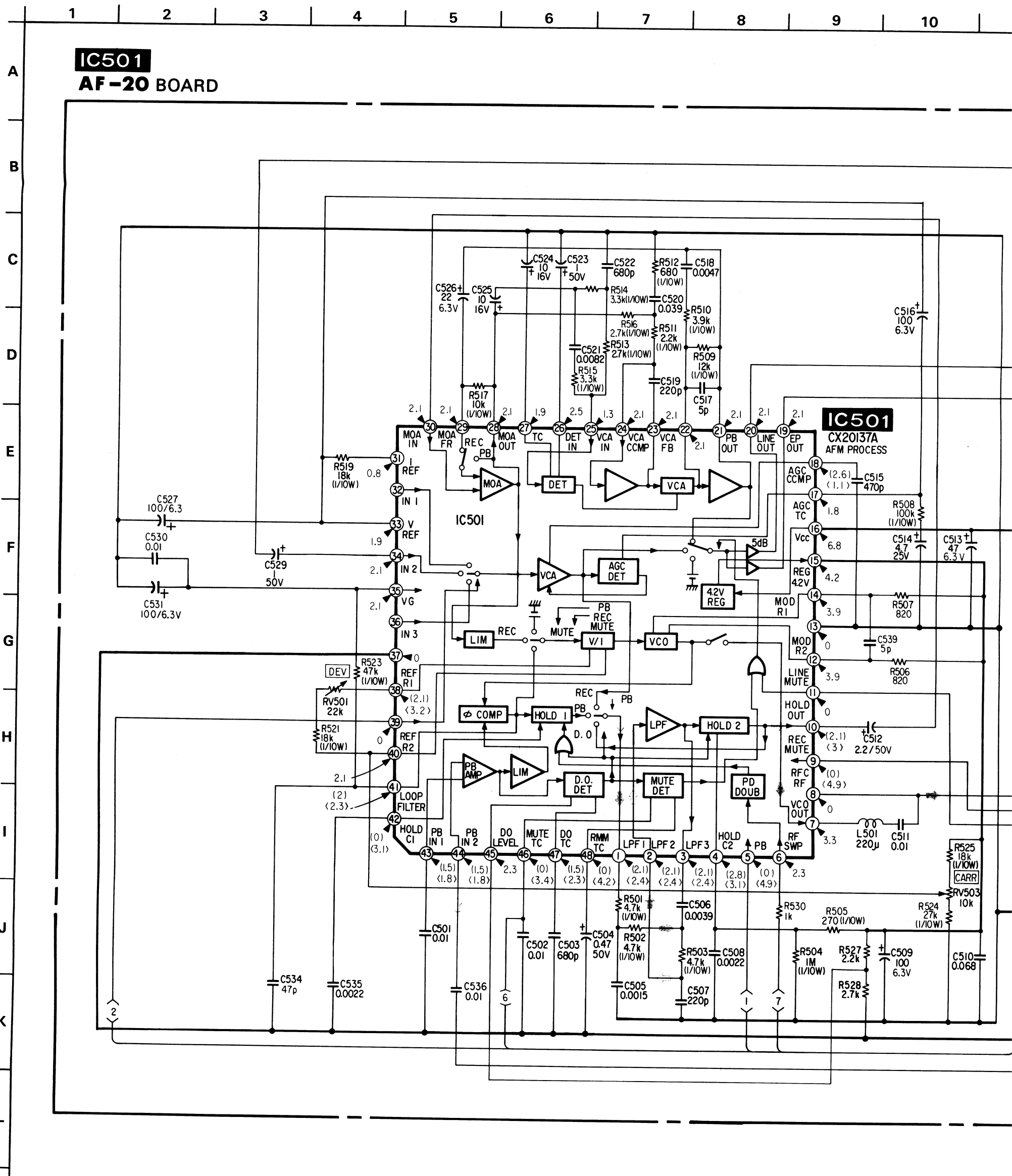
AF-20 BOARD

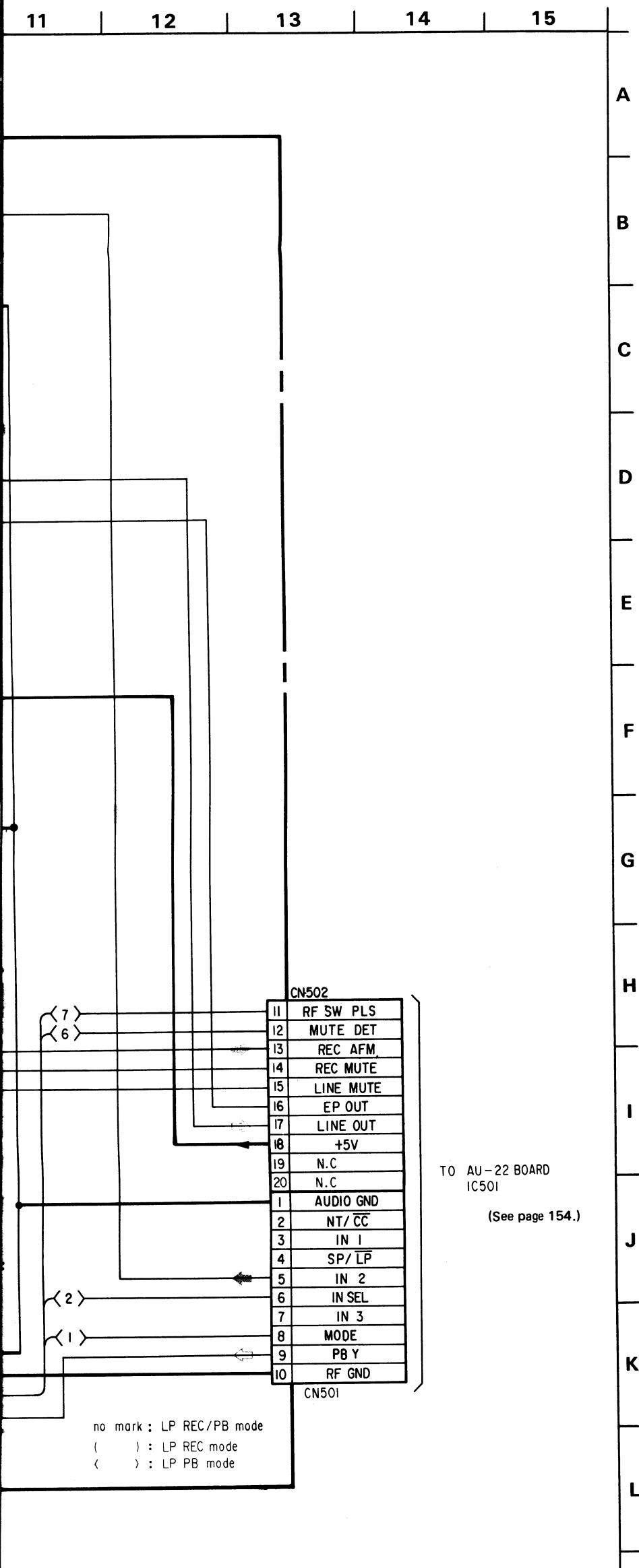


13

AF-20 (AFM MOD/DEMOD NOISE REDUCTION) SCHEMATIC DIAGRAM

—Ref. No. AF-20 BOARD : 8,000 series—






Note:

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
50V or less are not indicated except for electrolytic, and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : adjustment for repair.
- : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

When indicating parts by reference number, please include the board name.

- Signal path

—Ref. No. PW-30 BOARD : 9,000 series—

- ○ — : indicates a lead wire mounted on the component side.
- ● — : indicates a lead wire mounted on the printed side.
- ⊗ : Through hole.
-  : soldering side.
- : Component side.

| | |
|------|------|
| D101 | A-9 |
| D102 | D-7 |
| D103 | C-10 |
| D104 | D-9 |
| D105 | D-10 |

| | |
|-------|-----|
| IC101 | D-8 |
| IC201 | D-9 |
| IC202 | C-4 |

| | |
|------|-----|
| Q211 | C-3 |
| Q212 | D-1 |
| Q213 | D-8 |

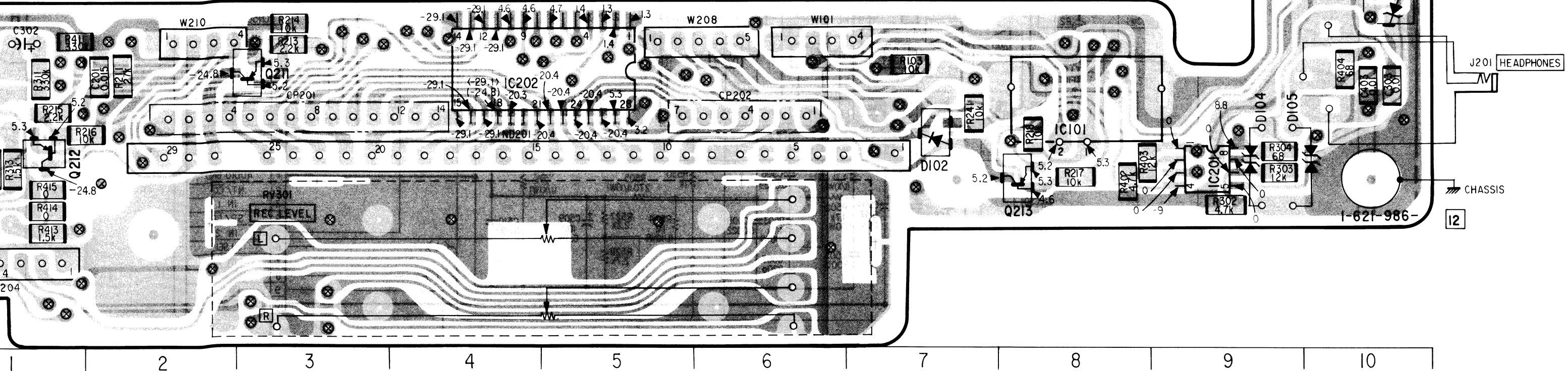
RV201 B-10
RV301 D-3



LEVEL METER/VOLUME/JACK/REMOTE CONTROL RECEIVER) PRINTED WIRING BOARD

V-30 BOARD : 9,000 series—

30 BOARD (SOLDER SIDE)



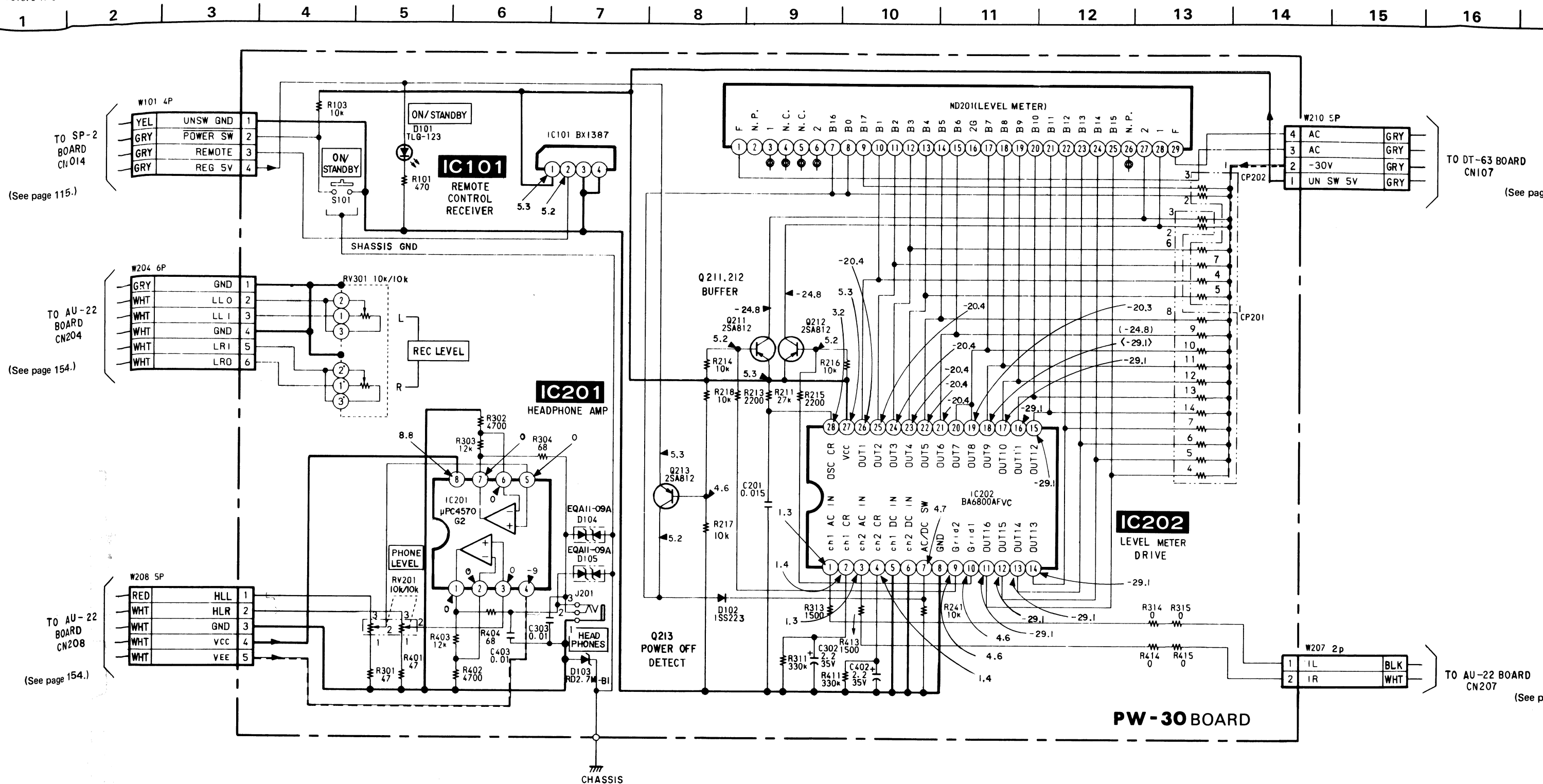
no mark : LP REC/PB mode

() : LP REC mode

< > : LP PB mode

PW-30 (LEVEL METER/VOLUME/JACK/REMOTE CONTROL RECEIVER) SCHEMATIC DIAGRAM

Ref. No. PW-30 BOARD : 9,000 series—



no mark : LP REC/PB mode

() : LP REC mode

< > : LP PB mode



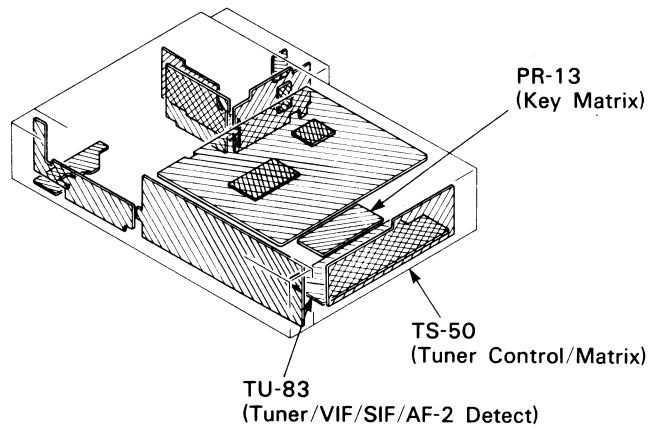
TU-83 (TUNER,VIF,SIF,AF-2 DETECT),TS-50 (TUNER CONTROL,MATRIX),PR-13 (KEY MATRIX) PRINTED WIRING BOARDS

—Ref. No. TU-83 and TS-50 BOARDS : 10, 000 series, PR-13 BOARD : 10, 500 series—

Note:

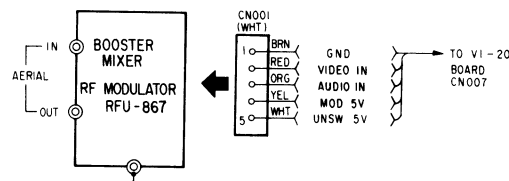
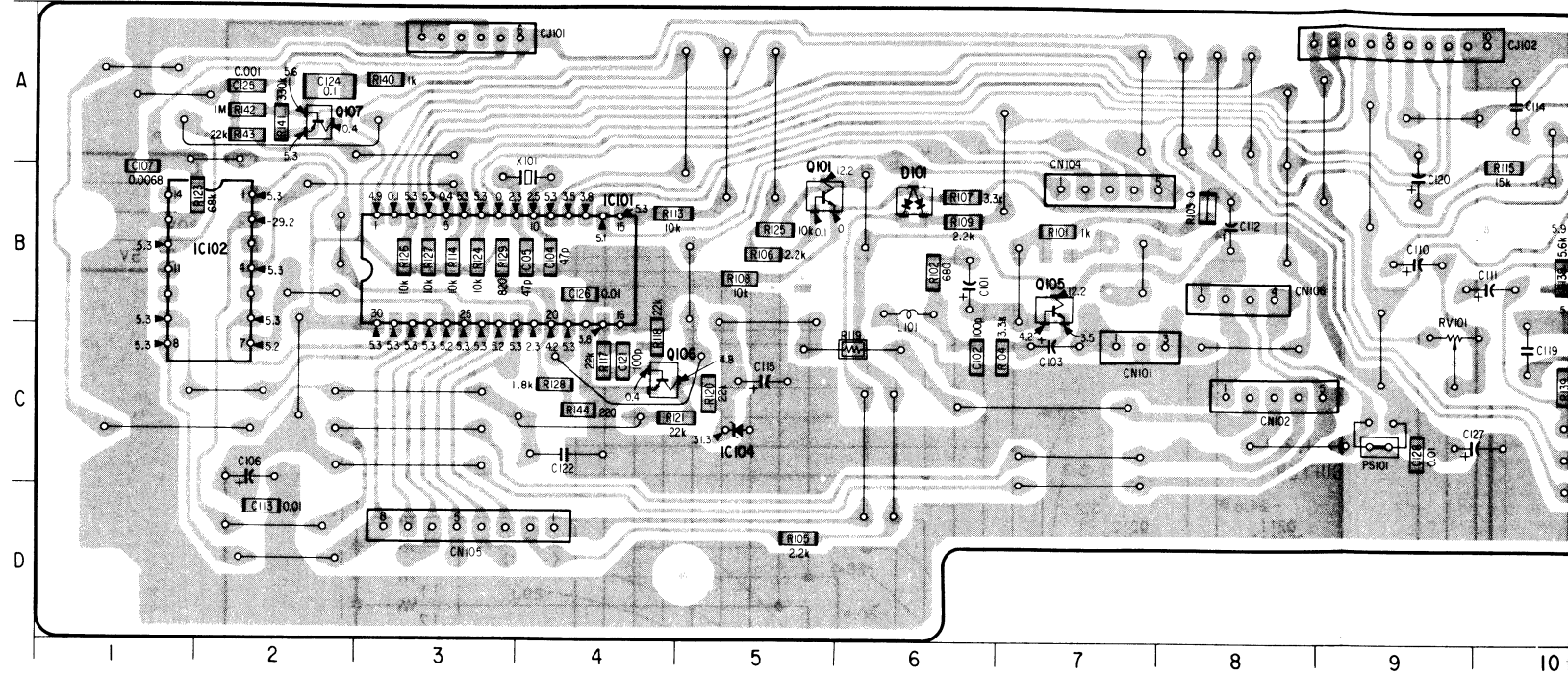
- : indicates a lead wire mounted on the component side.
 - : indicates a lead wire mounted on the printed side.
 - : soldering side.
 - Digital transistor (TU-83:Q005,Q006,Q007,TS-50:Q018) transistor with resistors.
- Refer to the TU-83,TS-50 boards schematic diagram for digital transistor.

When indicating parts by reference number, please include the board name.



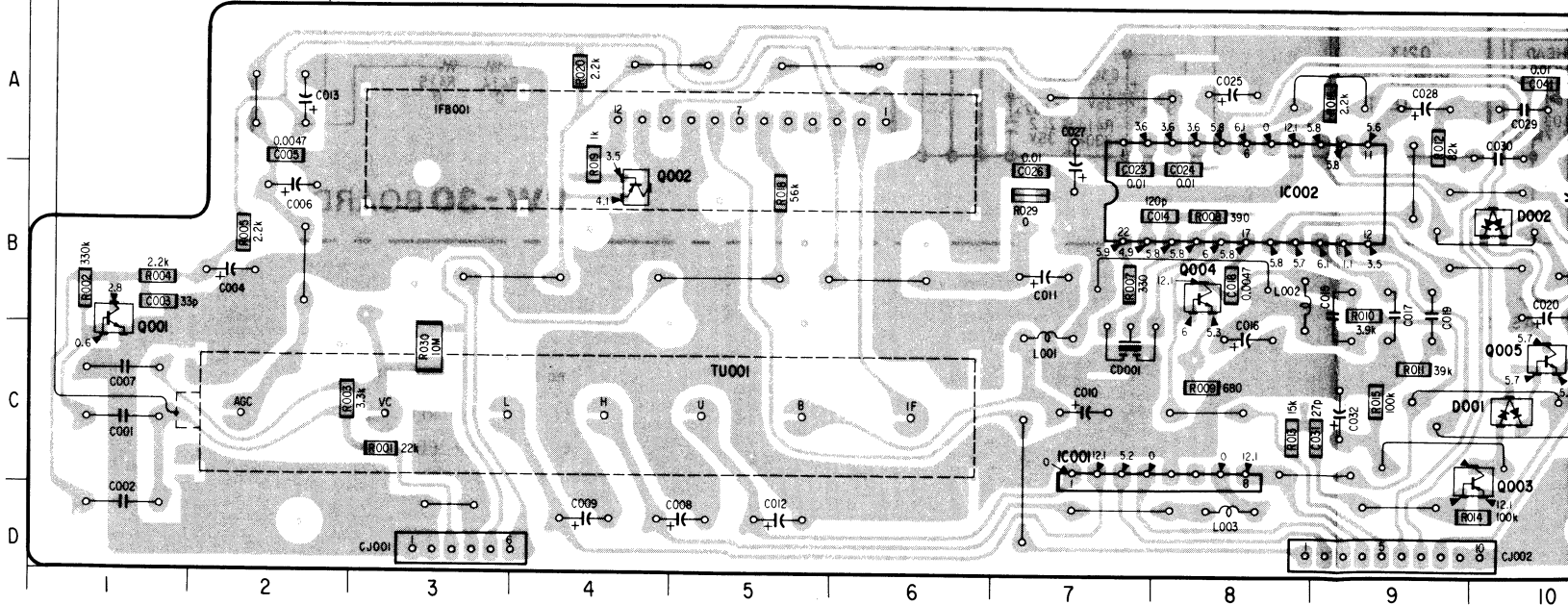
| | |
|-------|------|
| D101 | B-6 |
| IC101 | B-4 |
| IC102 | B-2 |
| IC103 | A-11 |
| IC104 | C-5 |
| Q101 | B-5 |
| Q102 | B-10 |
| Q103 | B-11 |
| Q104 | B-11 |
| Q105 | B-7 |
| Q106 | C-4 |
| Q107 | A-2 |
| RV101 | C-9 |

TS-50 BOARD



| | |
|-------|------|
| D001 | C-10 |
| D002 | B-10 |
| IC001 | C-7 |
| IC002 | B-8 |
| Q001 | B-1 |
| Q002 | B-4 |
| Q003 | C-10 |
| Q004 | B-8 |
| Q005 | C-10 |
| Q006 | B-10 |
| Q007 | B-10 |

TU-83 BOARD



TU-83 (TUNER, VIF, SIF, AF-2 DETECT), TS-50 (TUNER CONTROL, MATRIX), PR-13 (KEY MATRIX) PRINTED WIRING BOARDS

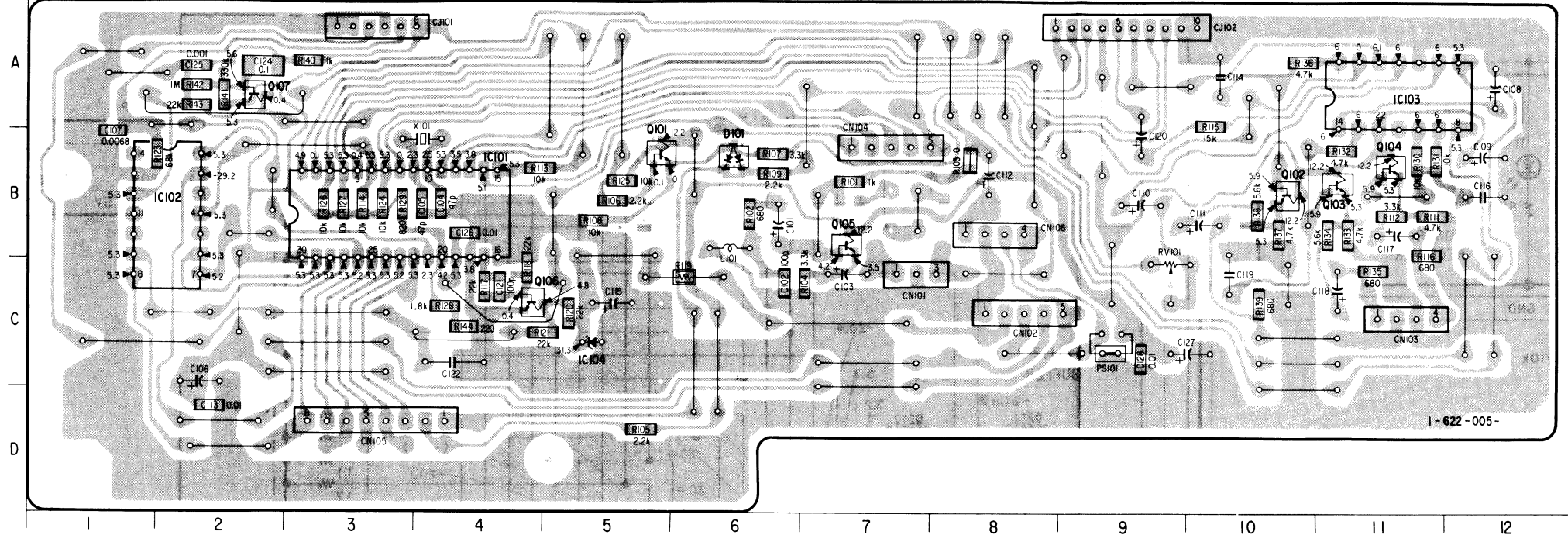
—Ref. No. TU-83 and TS-50 BOARDS : 10, 000 series, PR-13 BOARD : 10, 500 series—

D101 B-6
IC101 B-4
IC102 B-2
IC103 A-11
IC104 C-5

Q101 B-5
Q102 B-10
Q103 B-11
Q104 B-11
Q105 B-7
Q106 C-4
Q107 A-2

RV101 C-9

TS-50 BOARD

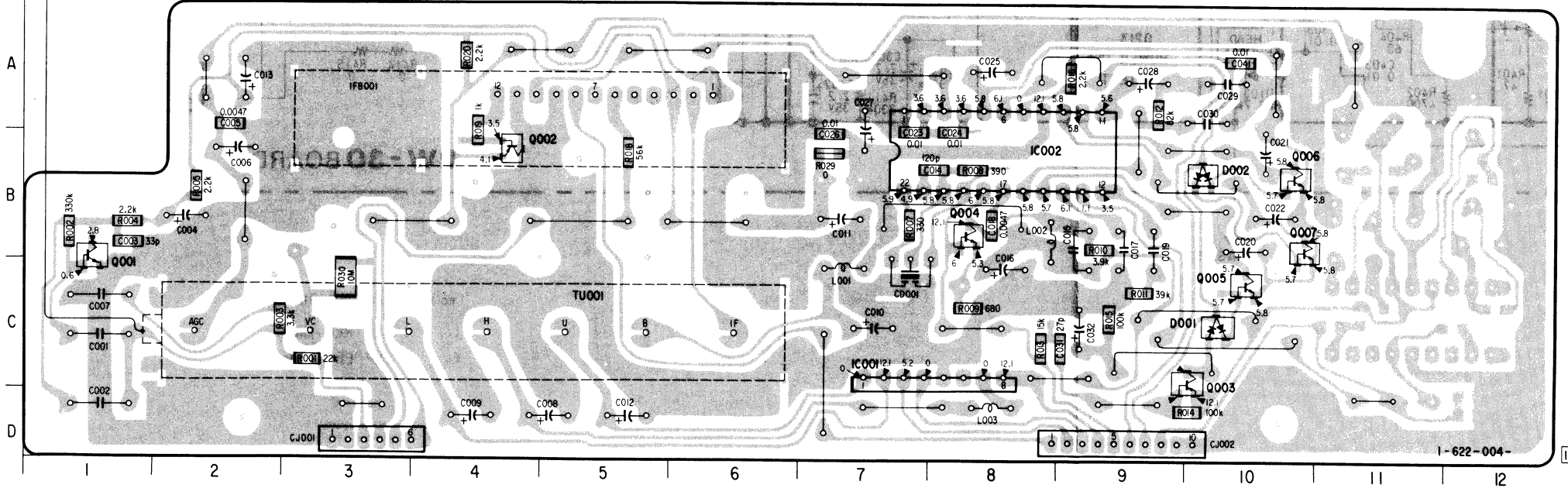


D001 C-10
D002 B-10

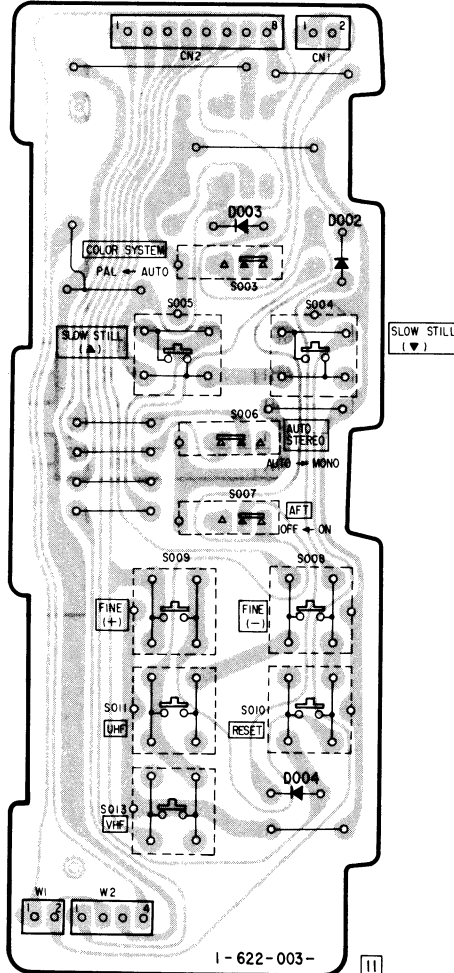
IC001 C-7
IC002 B-8

Q001 B-1
Q002 B-4
Q003 C-10
Q004 B-8
Q005 C-10
Q006 B-10
Q007 B-10

TU-83 BOARD



PR-13BOARD



—Ref. No. TU-83 and TS-50 BOARDS : 10, 000 series, PR-13 BOARD : 10, 500 series—





1

4.19MHz

0.36Vp

IC101 9 E-E

2

0.12 msec

5.2Vp-p

IC101 17 E-E

3

1.1Vp-p

H

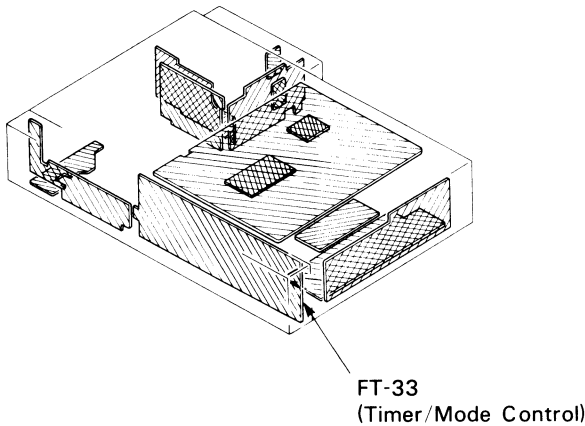
CN001 1 E-E

FT-33 (TIMER/MODE CONTROL) PRINTED WIRING BOARD

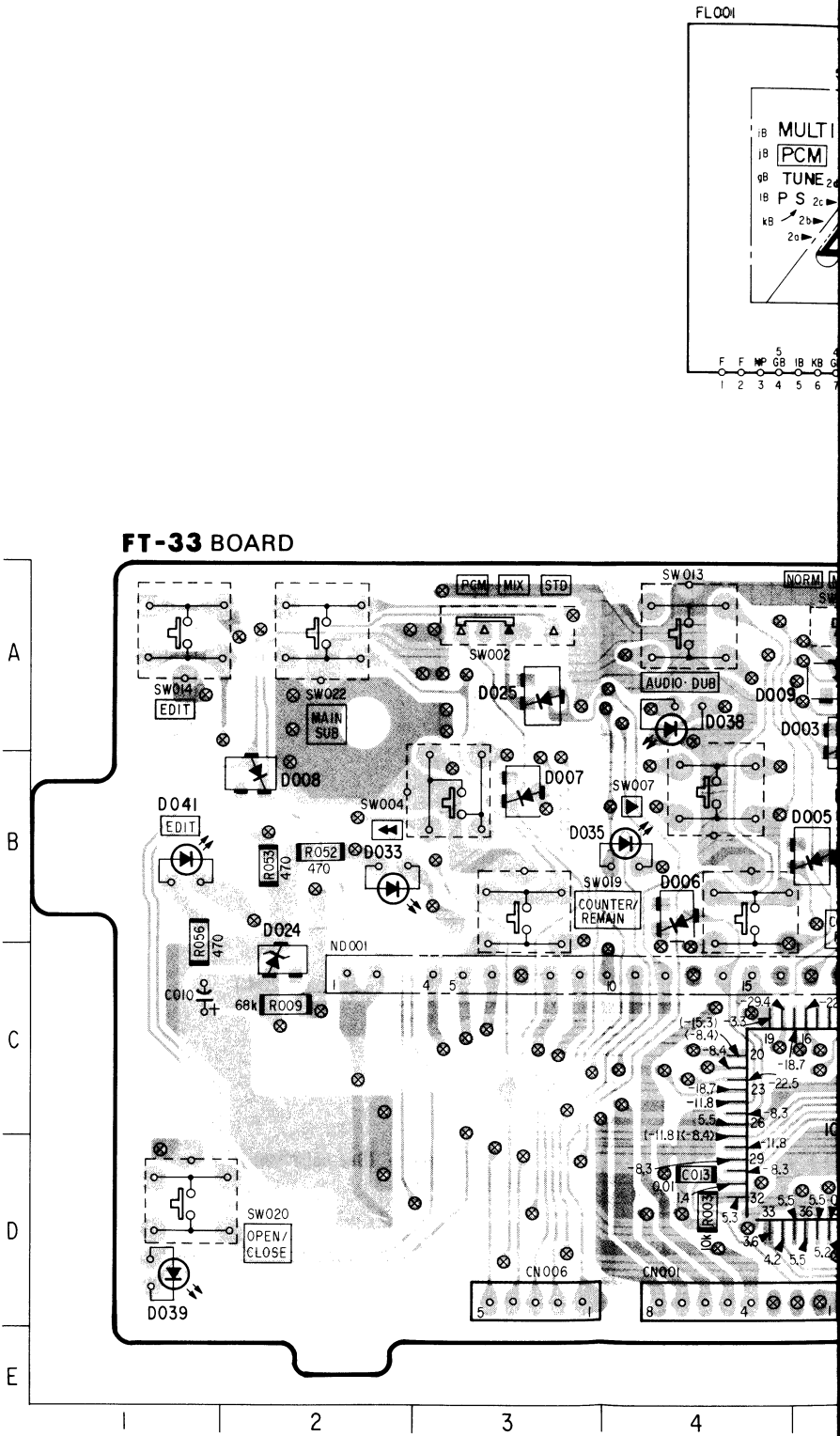
—Ref. No. FT-33 BOARD : 11, 000 series—

- Note:**
- : indicates a lead wire mounted on the component side.
 - : indicates a lead wire mounted on the printed side.
 - ⊗ : Through hole.
 - : soldering side.
 - : component side.

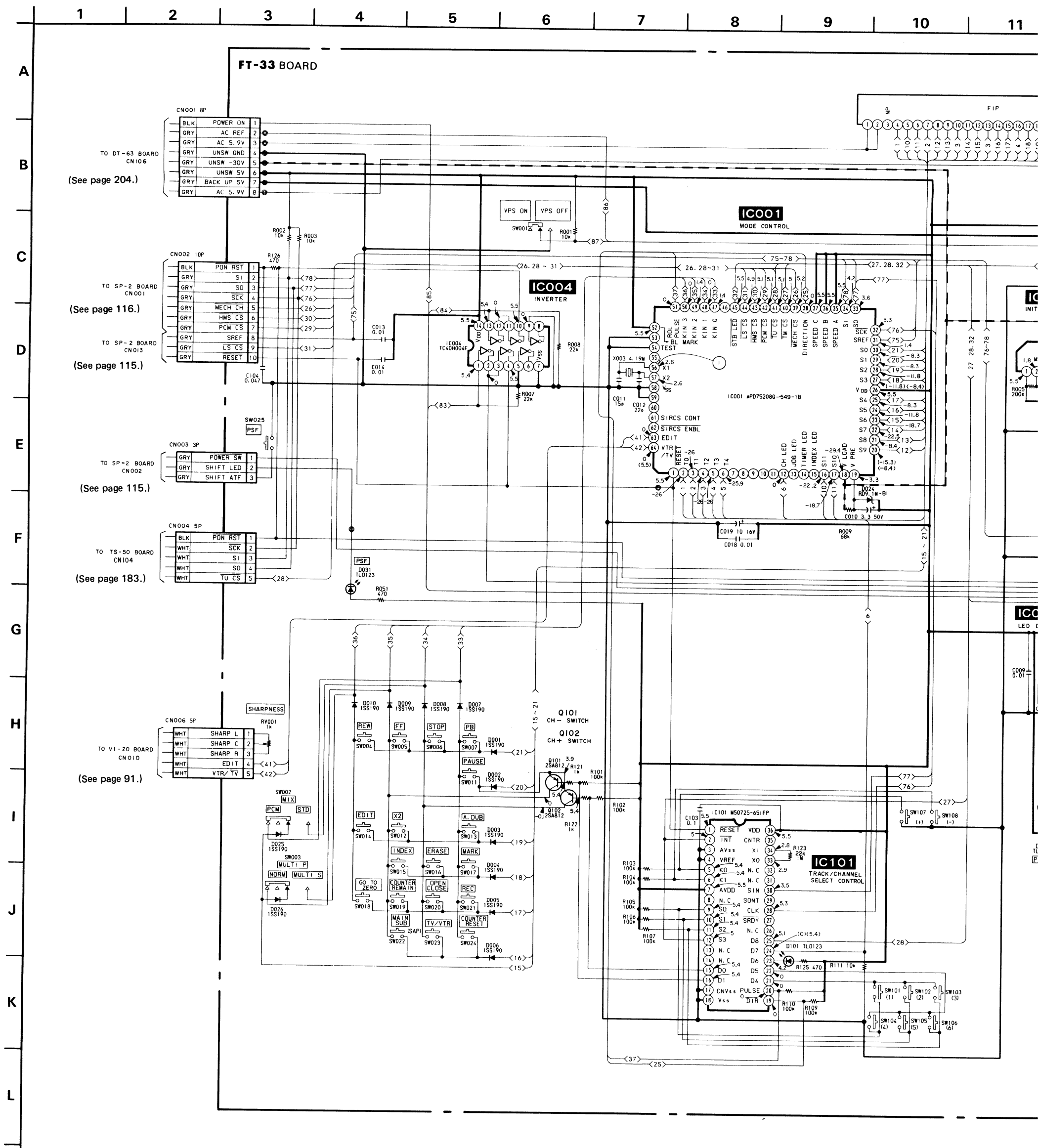
When indicating parts by reference number, please include the board name.

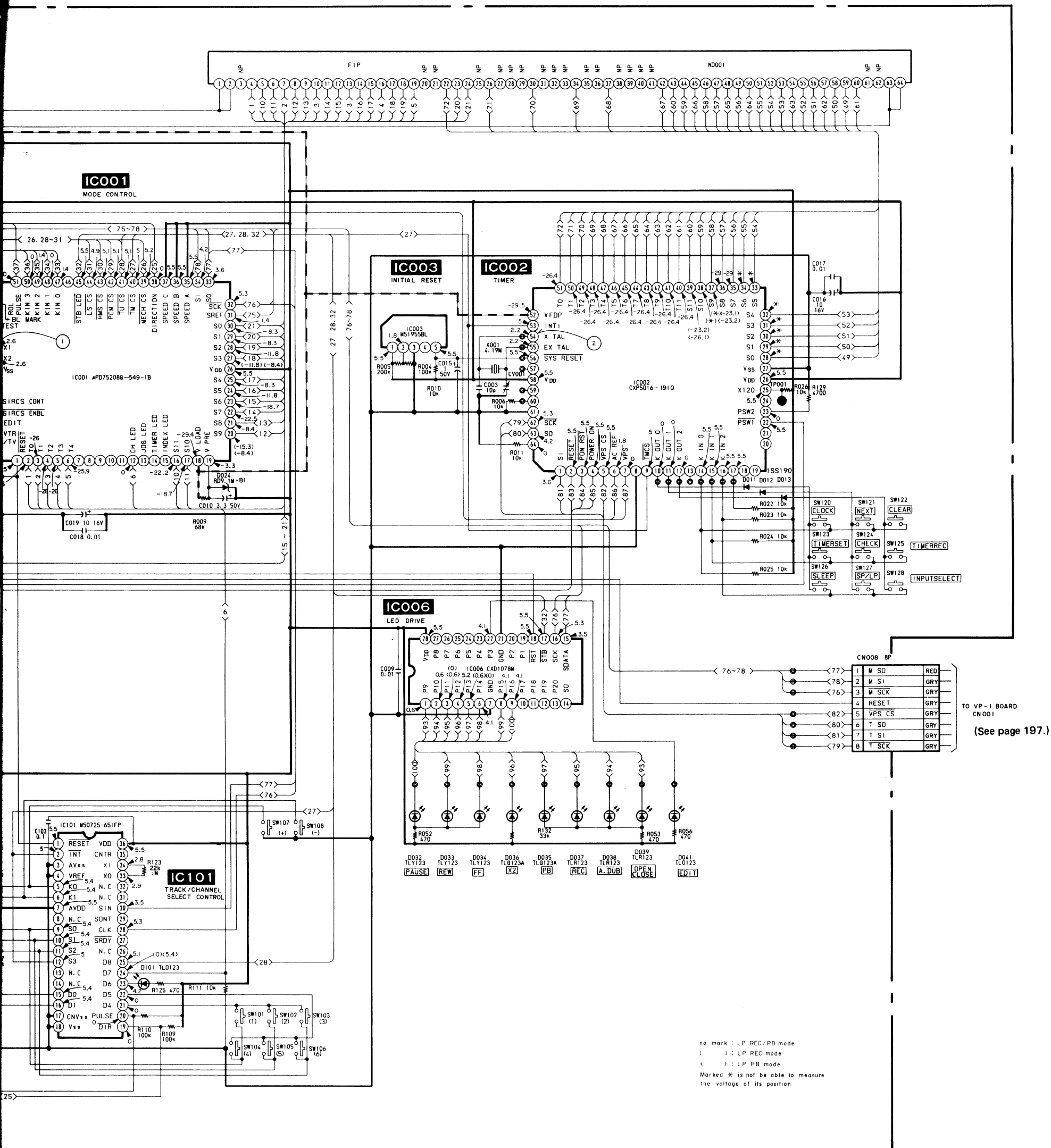


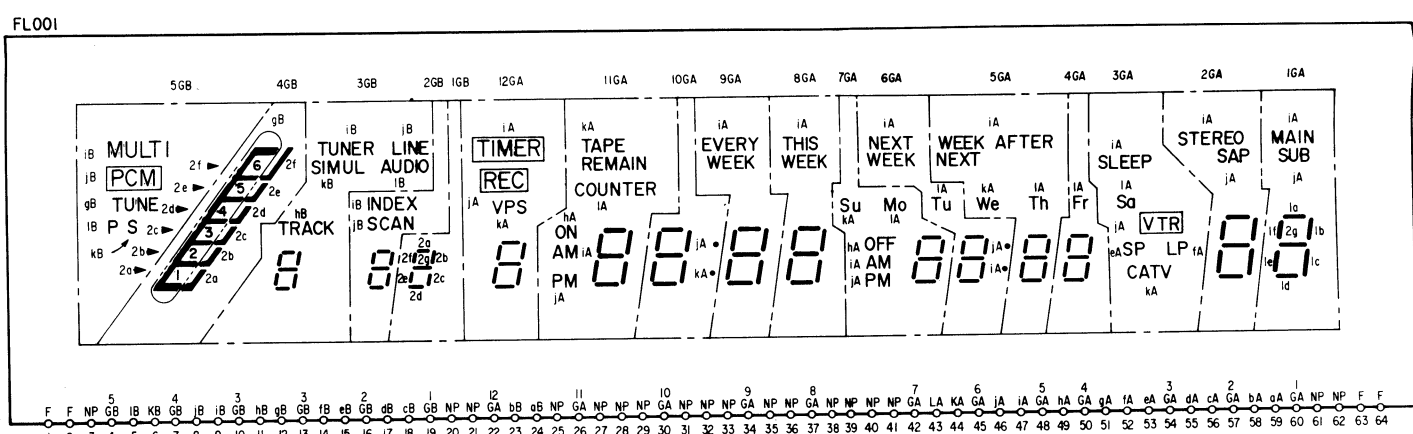
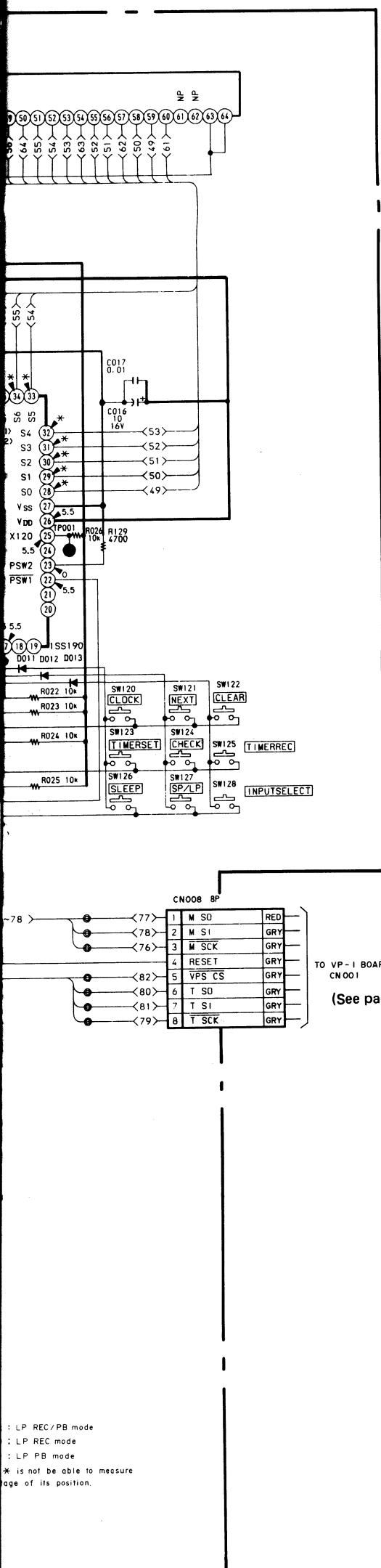
| | | | |
|-------|------|-------|------|
| CN001 | D-4 | IC001 | C-5 |
| CN002 | D-5 | IC002 | C-11 |
| CN003 | D-7 | IC003 | C-8 |
| CN004 | D-9 | IC004 | C-9 |
| CN006 | D-3 | IC006 | C-7 |
| CN008 | D-8 | IC101 | C-14 |
| CV001 | D-13 | Q101 | B-14 |
| D001 | B-5 | Q102 | B-14 |
| D002 | B-7 | RV001 | A-7 |
| D003 | B-5 | TP001 | D-13 |
| D004 | A-13 | | |
| D005 | B-5 | | |
| D006 | B-4 | | |
| D007 | B-3 | | |
| D008 | B-2 | | |
| D009 | A-5 | | |
| D010 | B-6 | | |
| D011 | A-13 | | |
| D012 | A-13 | | |
| D013 | A-13 | | |
| D024 | C-2 | | |
| D025 | A-3 | | |
| D026 | A-5 | | |
| D031 | A-6 | | |
| D032 | B-8 | | |
| D033 | B-2 | | |
| D034 | B-5 | | |
| D035 | B-4 | | |
| D036 | B-9 | | |
| D037 | B-10 | | |
| D038 | A-4 | | |
| D039 | D-1 | | |
| D041 | B-1 | | |
| D001 | E-13 | | |



FT-33 (TIMER/MODE CONTROL) SCHEMATIC DIAGRAM
 —Ref. No. FT-33 BOARD : 11,000 series—



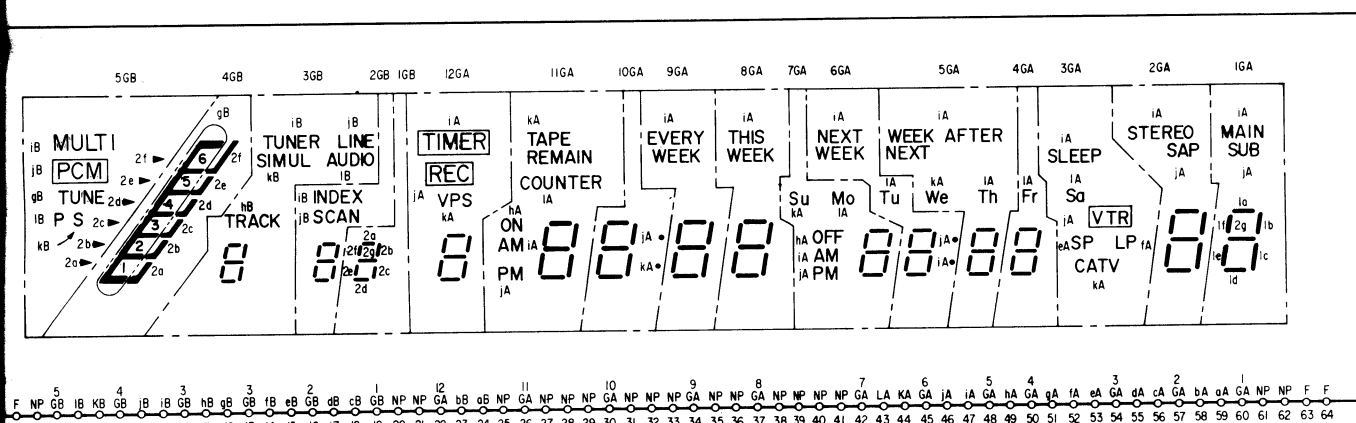








| CN008 8P | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|----------|------|------|-------|-------|--------|------|------|-------|
| | M SD | M SI | M SCK | RESET | VPS CS | T SD | T SI | T SCK |
| | RED | GRY | GRY | GRY | GRY | GRY | GRY | GRY |

TO VP-I BOARD
CN001
(See page 197.)

9 20 21 22 23 24 25 26

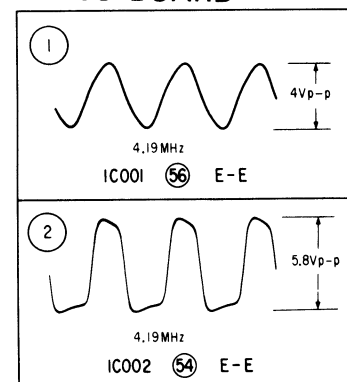


Note:

- Caution when replacing chip parts. New parts must be attached after removal of chip. Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted. kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF. 50V or less are not indicated except for electrolytic and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
-  : panel designation.
-  : adjustment for repair.
-  : B + bus.
-  : B - bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

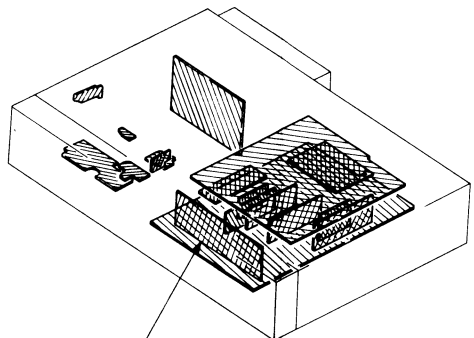
When indicating parts by reference number, please include the board name.

FT-33 BOARD



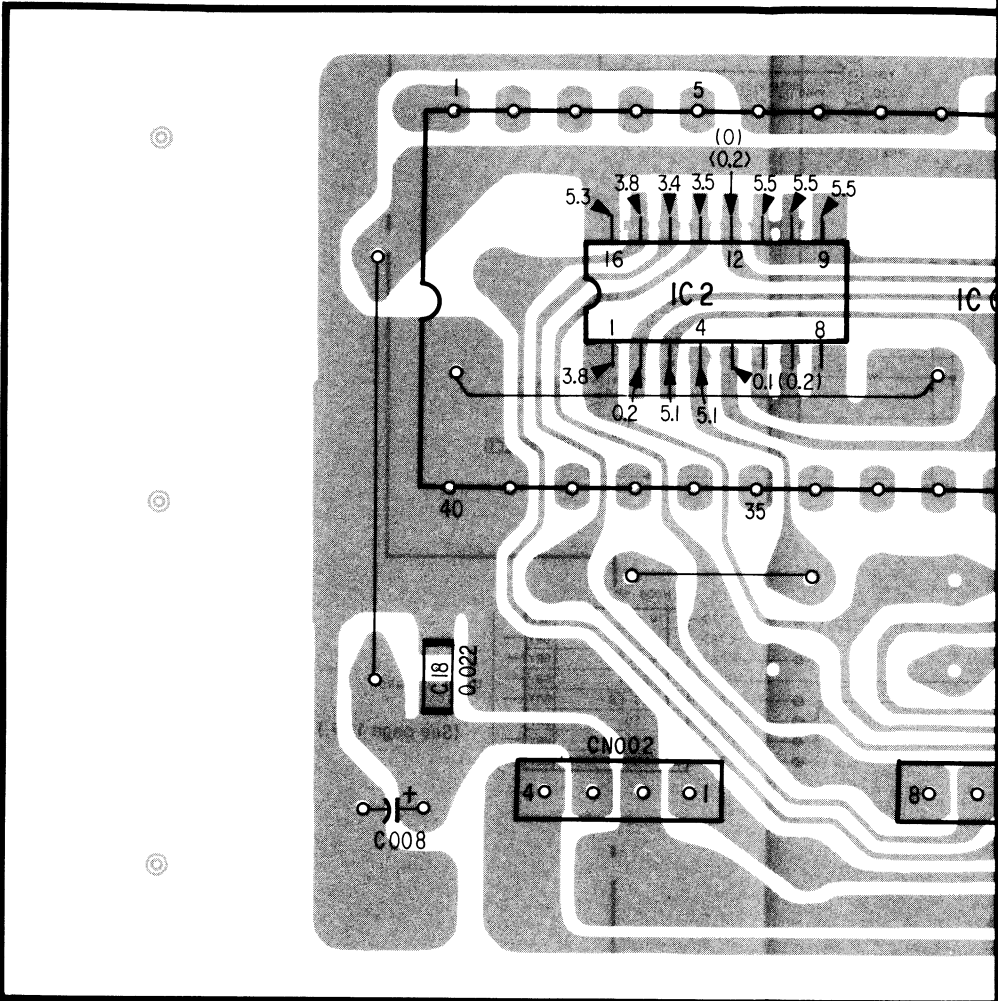
- Note:**
- ○ : indicates a lead wire mounted on the component side.
 - ● : indicates a lead wire mounted on the printed side.
 - ■ : soldering side.

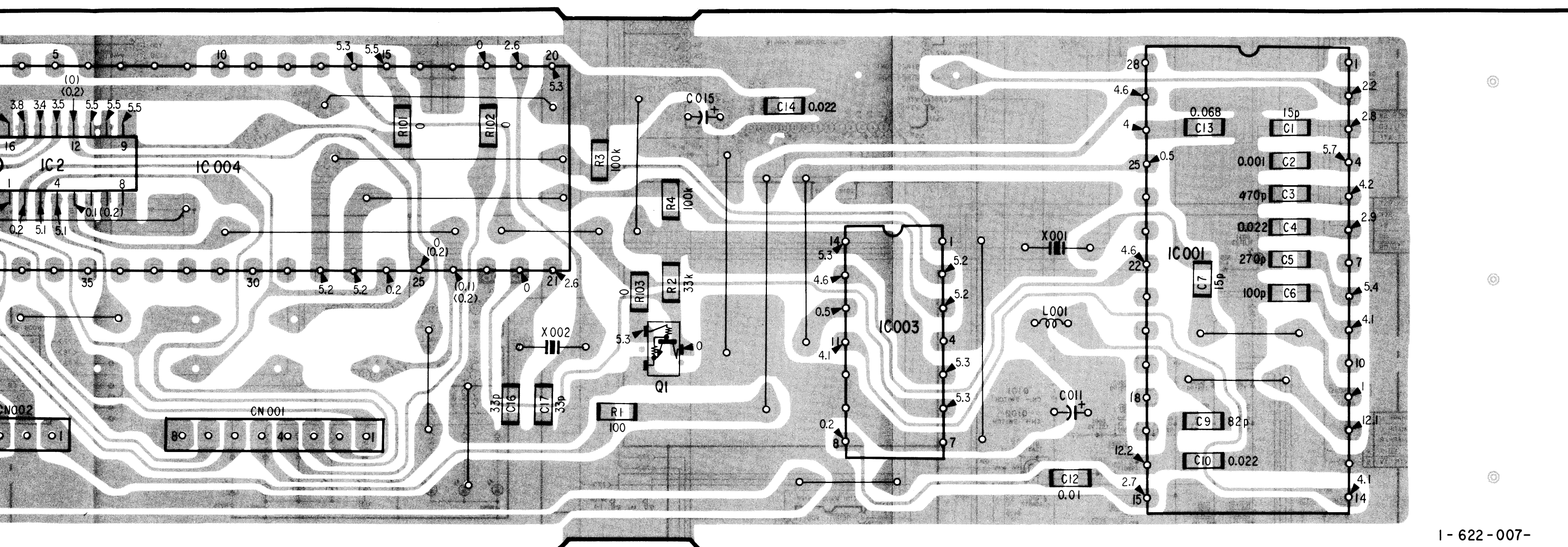
When indicating parts by reference number, please include the board name.



VP-1
(VPS/BUS Select)

VP-1 BOARD





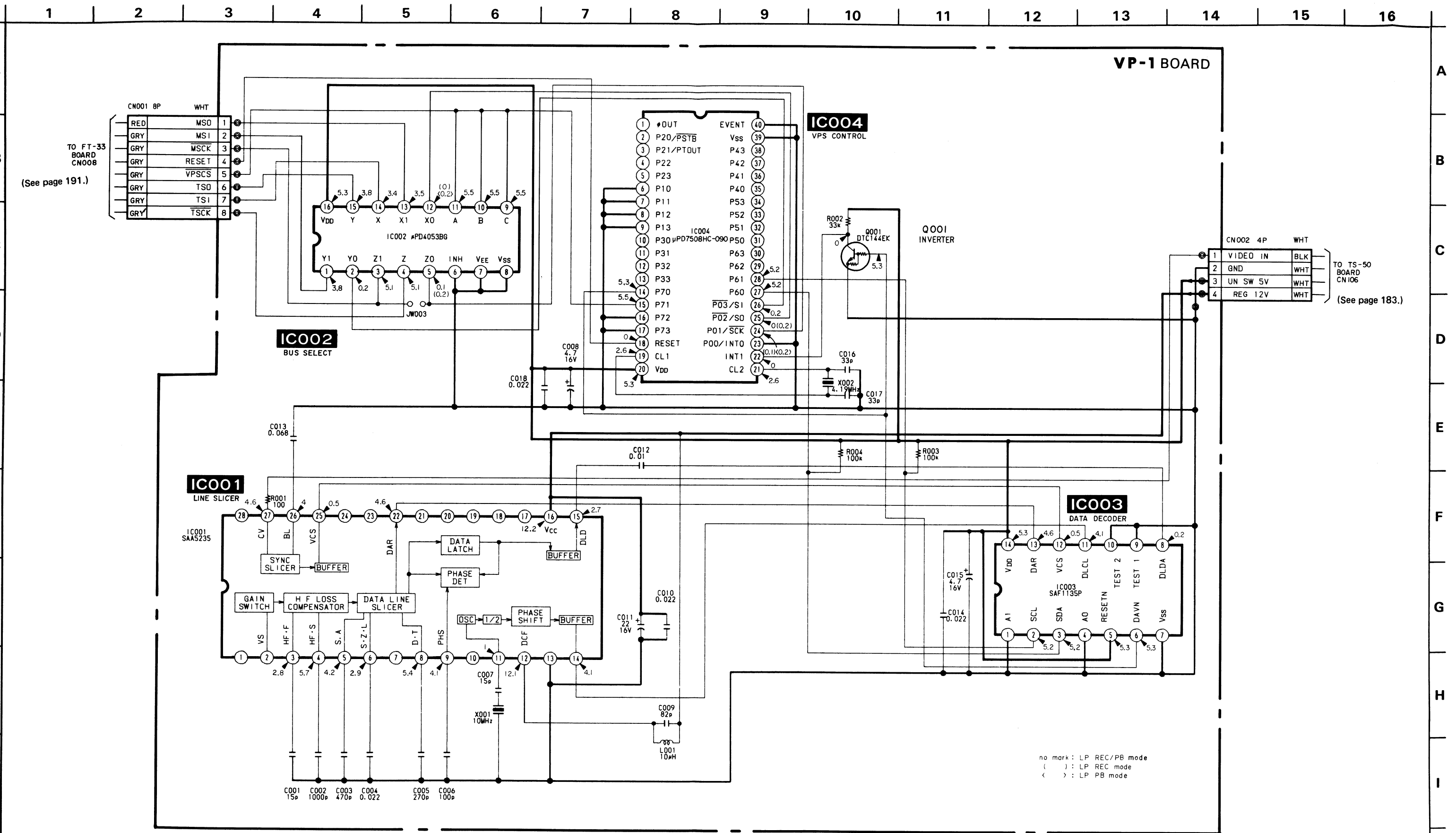
I - 622 - 007 -

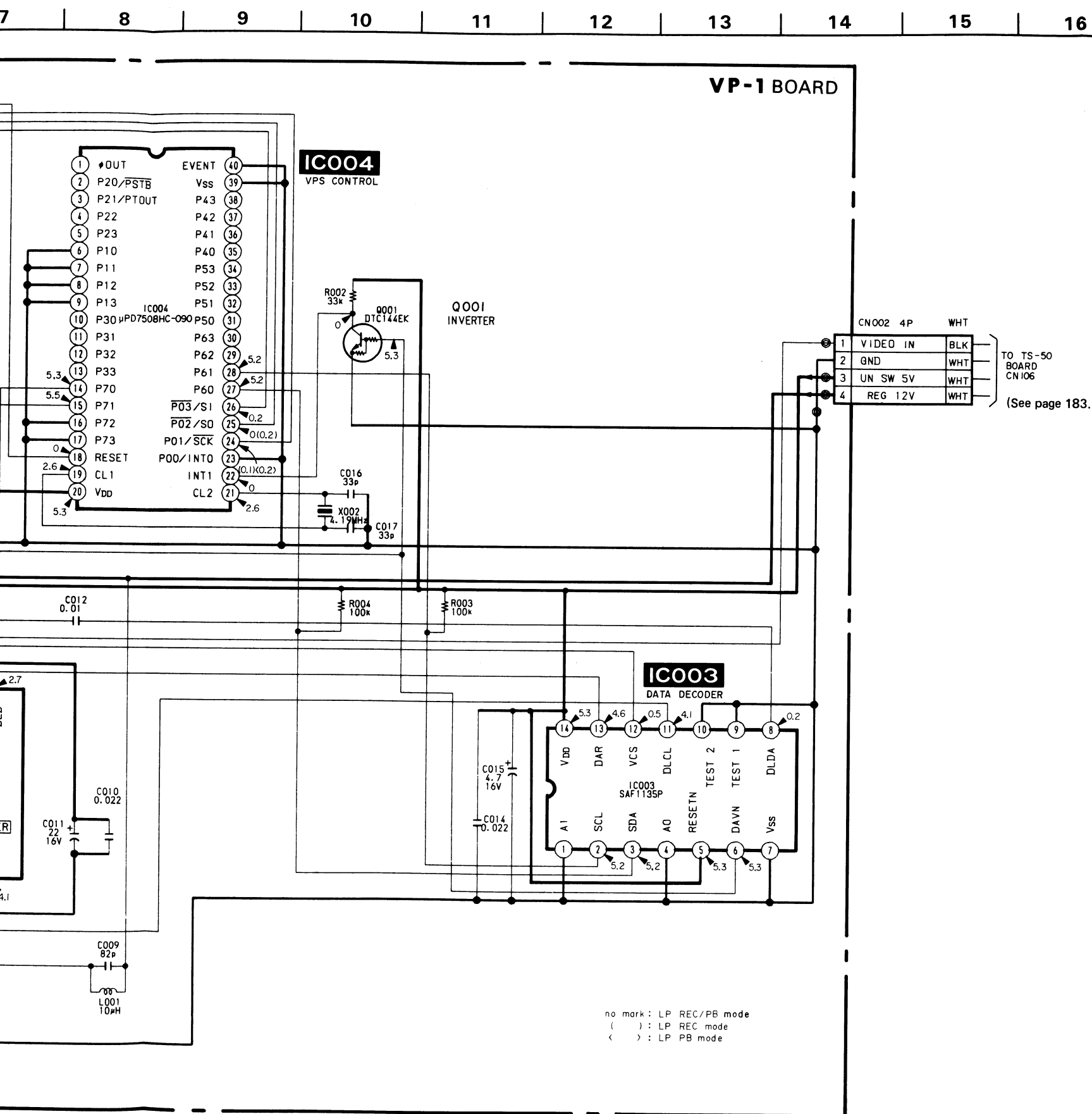
no mark : LP REC / PB mode
 () : LP REC mode
 < > : LP PB mode



VP-1 (VPS/BUS SELECT) SCHEMATIC DIAGRAM

—Ref. No. VP-1 BOARD : 12,000 series—





Note:

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF.
50V or less are not indicated except for electrolytic, and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- □ : panel designation.
- □ : adjustment for repair.
- — : B + bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a colour-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

When indicating parts by reference number, please include the board name.

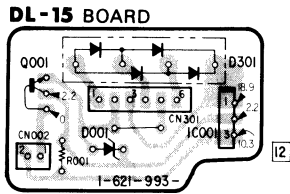
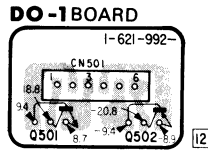
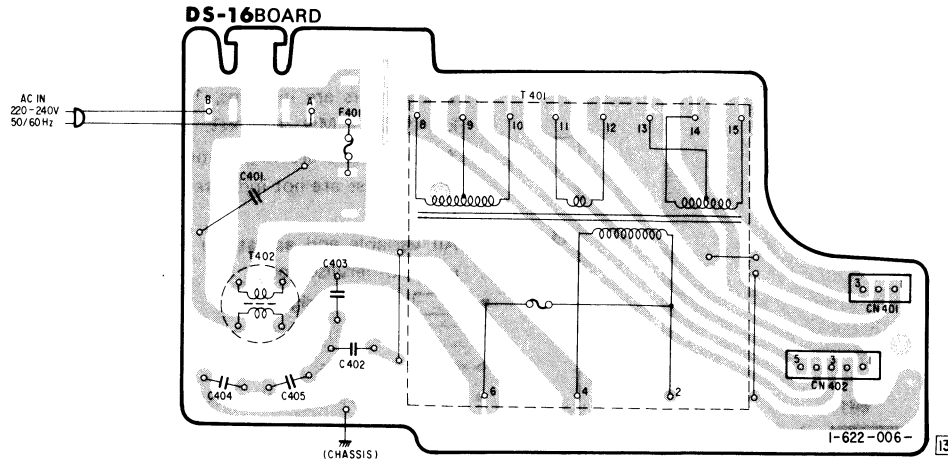
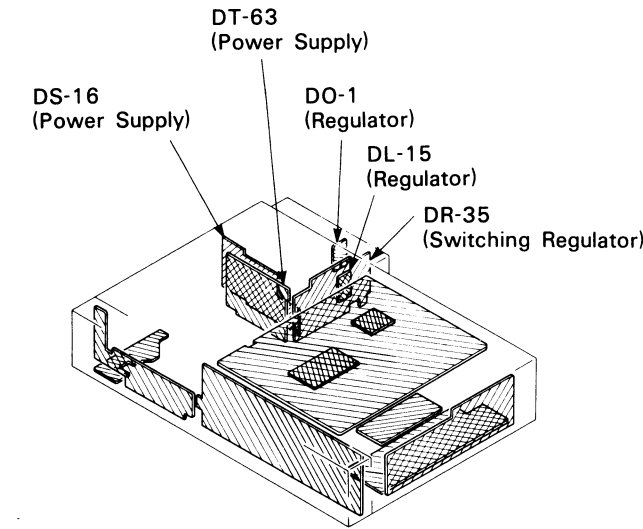
DR-35 (SWITCHING REGULATOR), DT-63 (POWER SUPPLY), DL-15 (REGULATOR), DO-1 (REGULATOR), DS-16 (POWER SUPPLY) PRINTED WIRING BOARDS

—Ref. No. DR-35, DT-63, DL-15, DO-1 and DS-16 BOARDS : 13, 000 series—

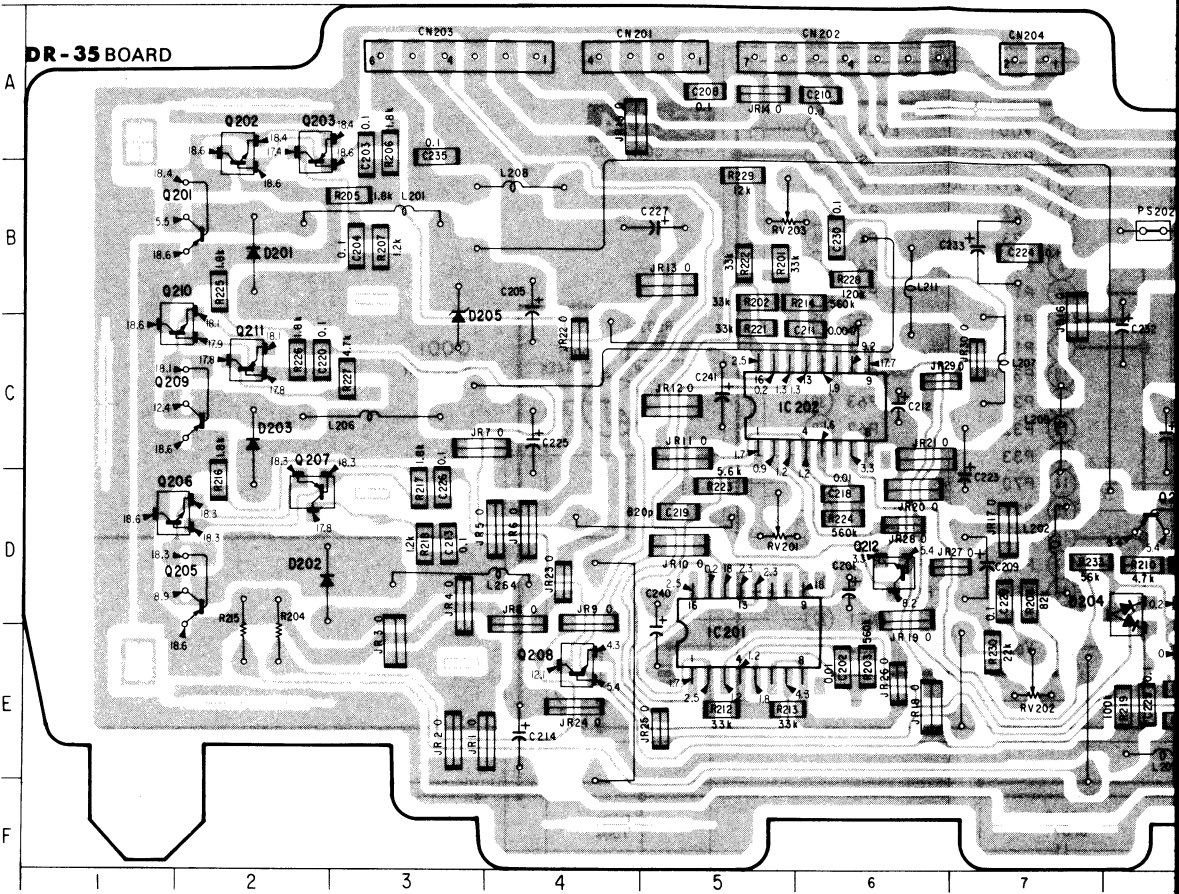
Note:

- — : indicates a lead wire mounted on the component side.
- — : indicates a lead wire mounted on the printed side.
- : soldering side.
- Digital transistor (DR-35:Q208,Q212,Q213,Q214,DL-15:Q001) transistor with resistors.
Refer to the DR-35,DL-15 boards schematic diagram for digital transistor.

When indicating parts by reference number, please include the board name.

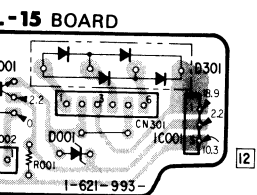
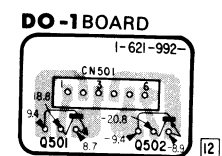
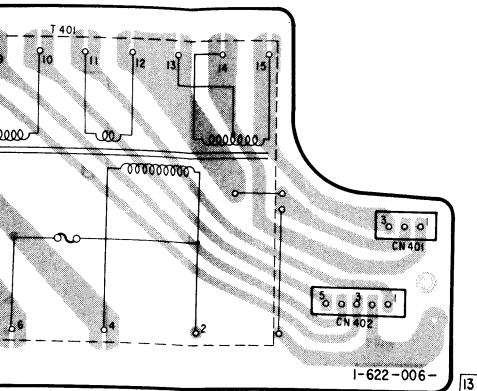


| | |
|-------|-----|
| D201 | B-2 |
| D202 | D-2 |
| D203 | C-2 |
| D204 | D-8 |
| D205 | B-3 |
| IC201 | E-5 |
| IC202 | C-6 |
| Q201 | B-2 |
| Q202 | A-2 |
| Q203 | A-2 |
| Q204 | D-8 |
| Q205 | D-2 |
| Q206 | D-1 |
| Q207 | D-2 |
| Q208 | E-4 |
| Q209 | C-2 |
| Q210 | C-1 |
| Q211 | C-2 |
| Q212 | D-6 |
| Q213 | D-8 |
| Q214 | E-8 |
| RV201 | D-5 |
| RV202 | E-7 |
| RV203 | B-5 |

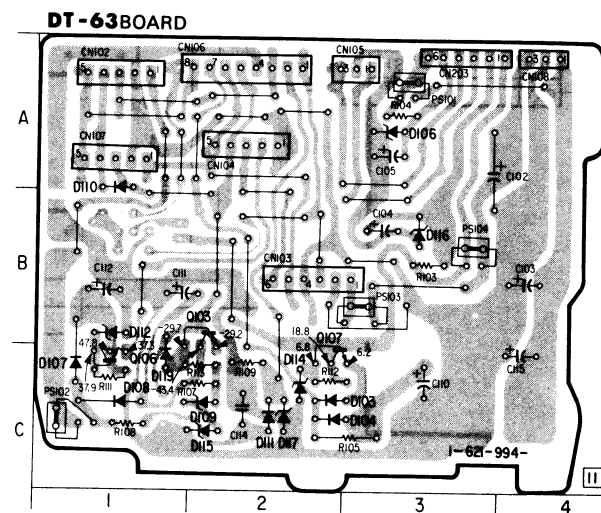
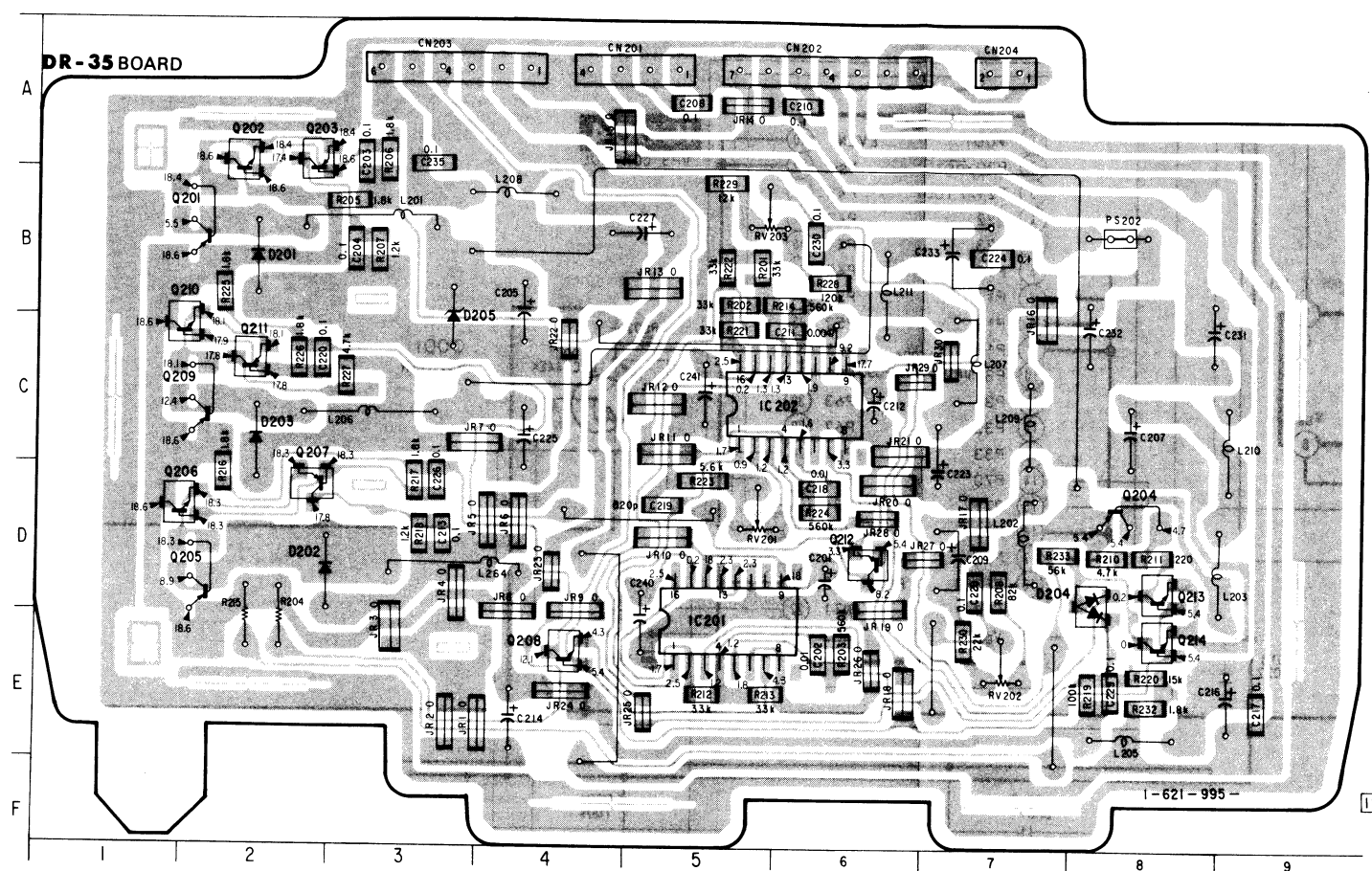


DT-63 (POWER SUPPLY), DL-15 (REGULATOR), DO-1 (REGULATOR), DS-16 (POWER SUPPLY) PRINTED WIRING BOARDS

-16 BOARDS : 13,000 series—



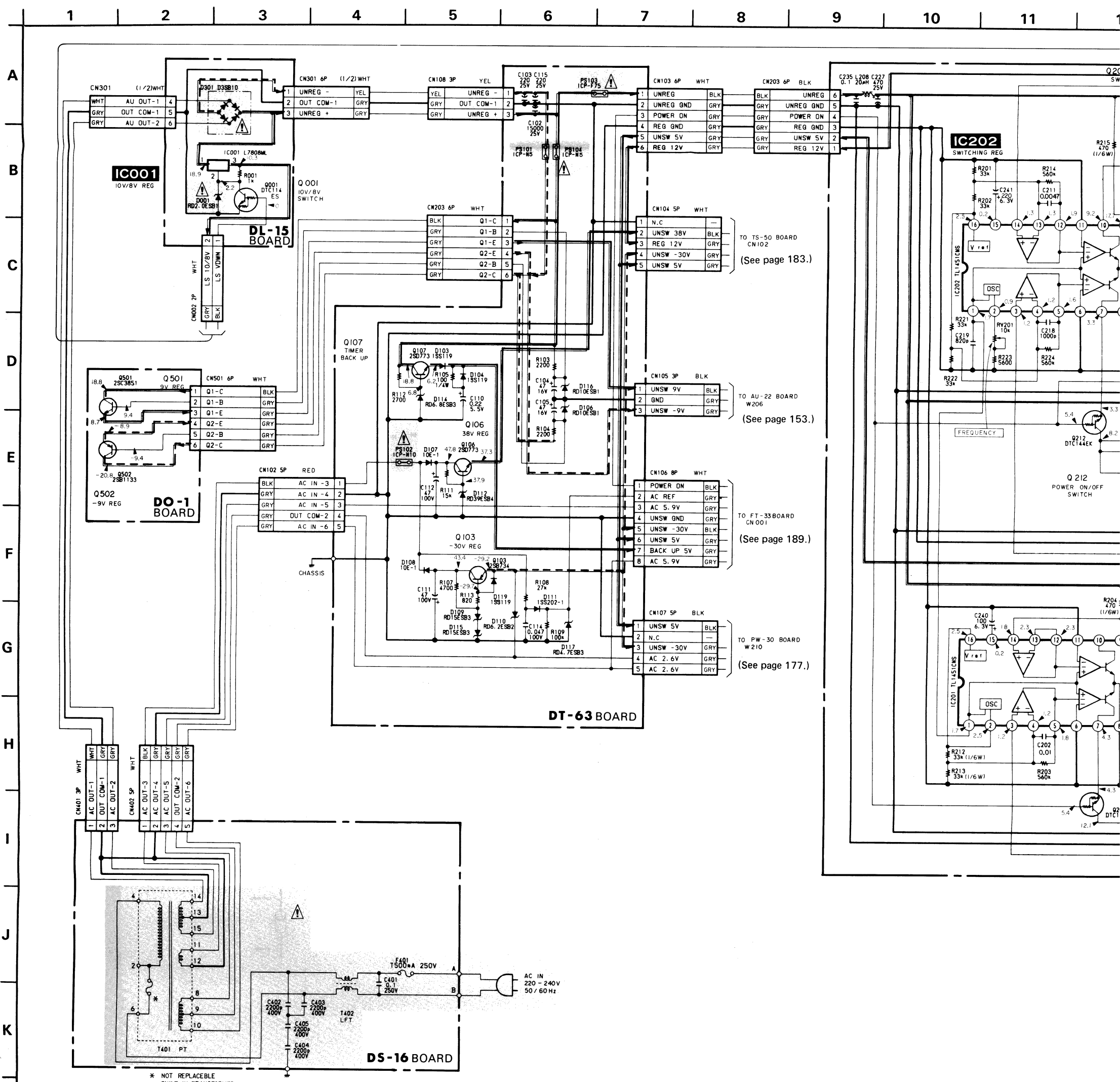
- | | |
|-------|-----|
| D201 | B-2 |
| D202 | D-2 |
| D203 | C-2 |
| D204 | D-8 |
| D205 | B-3 |
| IC201 | E-5 |
| IC202 | C-6 |
| Q201 | B-2 |
| Q202 | A-2 |
| Q203 | A-2 |
| Q204 | D-8 |
| Q205 | D-2 |
| Q206 | D-1 |
| Q207 | D-2 |
| Q208 | E-4 |
| Q209 | C-2 |
| Q210 | C-1 |
| Q211 | C-2 |
| Q212 | D-6 |
| Q213 | D-8 |
| Q214 | E-8 |
| RV201 | D-5 |
| RV202 | E-7 |
| RV203 | B-5 |

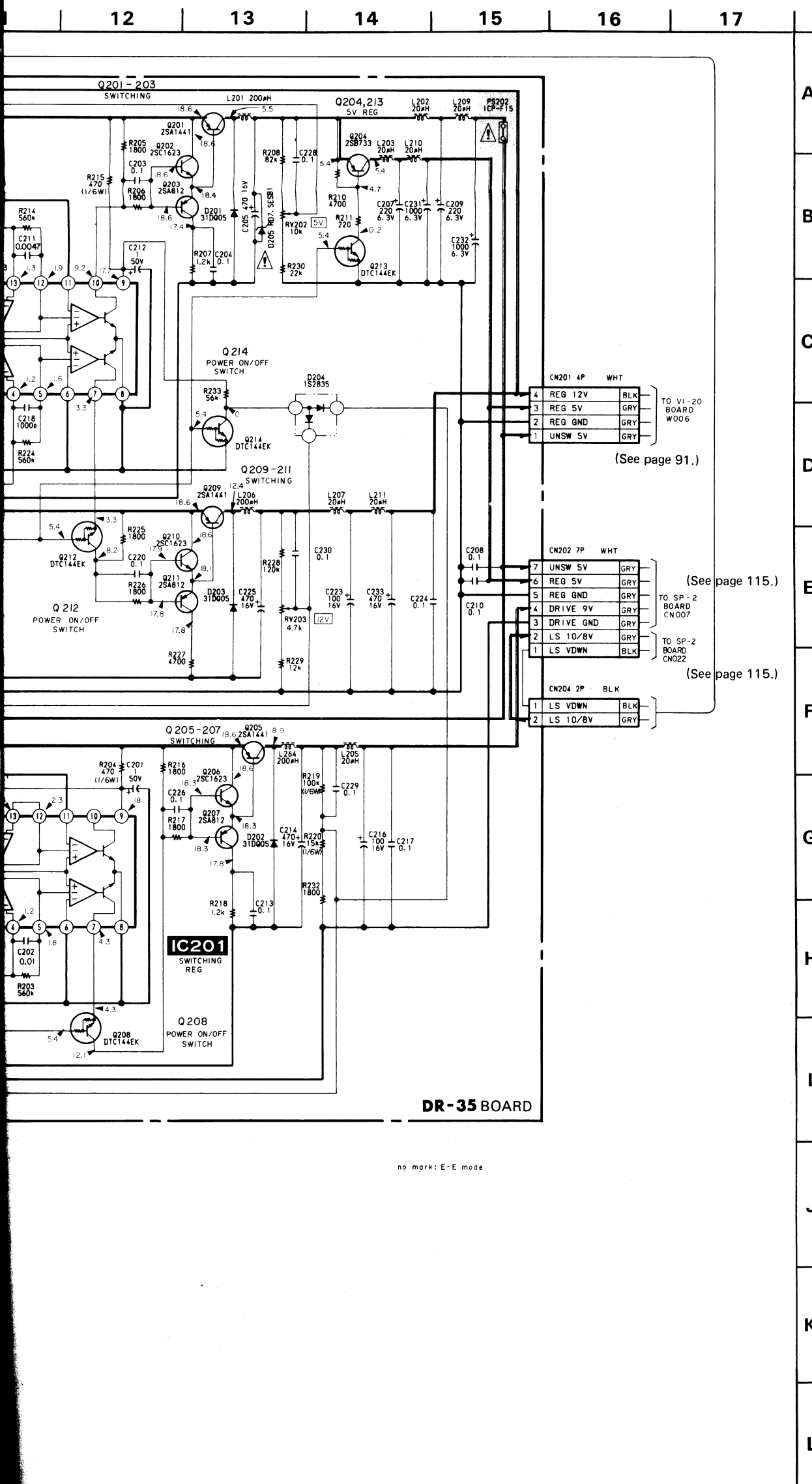


no mark : E-E mode

DR-35 (SWITCHING REGULATOR), DT-63 (POWER SUPPLY), DL-15 (REGULATOR), DO-1 (REGULATOR), DS-16 (POWER SUPPLY) SCHEMATIC DIAGRAM

—Ref. No. DR-35, DT-63, DL-15, DO-1 and DS-16 BOARDS : 13,000 series—





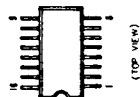
Note:

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- Resistors on the DR-35 board are in ohms 1/10W unless otherwise noted.
Resistors on the DT-63 and DL-15 boards are in ohms 1/6W unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF.
50V or less are not indicated except for electrolytic and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- □ : adjustment for repair.
- — : B + bus.
- - - - : B - bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

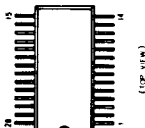
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

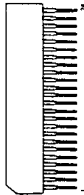
BA6303F
BU4053BF
CX20115A
CX22021
HD14052BFP
LA5005M
MB84053BPF
TC4052BF
TC4053BF
TC4538BF
TL1451CNS
 μ PD4052BG
 μ PD4053BG



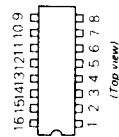
BA6800AF
CXD1077M
CXD1078M
CX20035
CX20099
CX23012
MB8464-12LPF
MB8464-15LPF
M51955BL



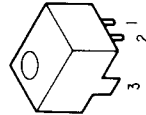
BA7036LS



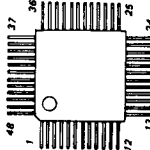
BU4051B
BU4052B
BU4053B
CXA1042M
CX23078
HD14051BP
HD14052BP
HD14053BFP
HD14053BP
HD14538BP
MB84051B
MB84052B
MB84053B
MB88306P
MC14538BCP
MSM6411B-19RS
TC4051BP
TC4051BP-HB
TC4052BP
TC4052BP-HP
TC4053BP
TC4053BP-HP
TC4538BP
 μ PD4051BC
 μ PD4052BC
 μ PD4053BC



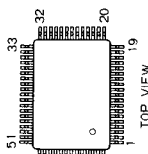
BX1387



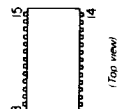
CXD1066Q
CX20034
CX23011
MB64H428PF



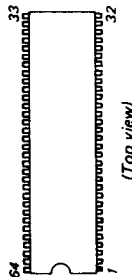
CXP5016-191Q
CXP5048H-069Q
CXP5048H-070Q
MB674101PF
 μ PD75104G-519-B1
 μ PD75106G-518-1B
 μ PD75208G-549-1B



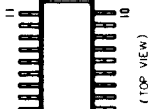
CX20032
SAA5235
 μ PD4364G-15L



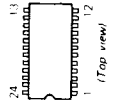
CX20061



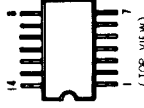
CX20102



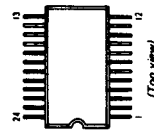
CX20147
TDA3592A
 μ PD7566G-506



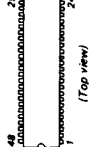
CX20103
HD14066BFP
HD14070BFP
NJM3403AM
TC40H00F
TC40H004F
TC4011BF
TC4030BF
TC4030BF-HB
TC4066BF
 μ PC324G2
 μ PD4066BG



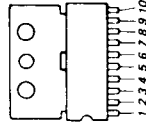
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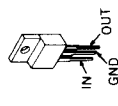
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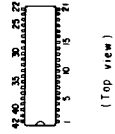
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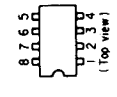
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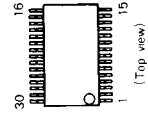
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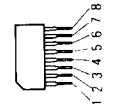
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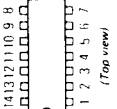
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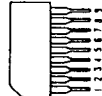
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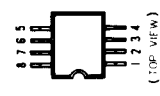
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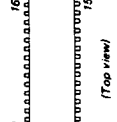
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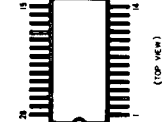
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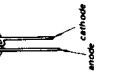
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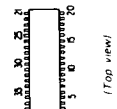
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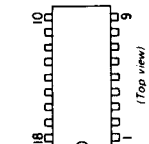
μ PC574J



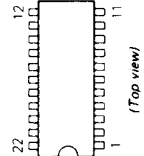
μ PD7508HC-090



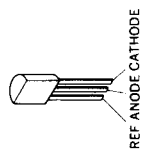
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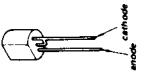
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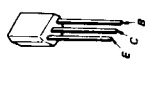
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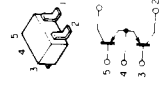
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2SC2412K
2SC2712
2SC2812L5
2SC2812L6
2SC2812L7
2SC3052
2SC3326N



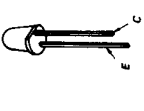
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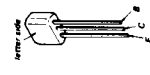
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PT360FS



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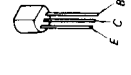
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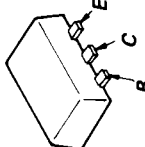
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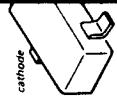
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2SD999



2SK209
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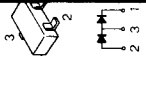
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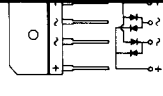
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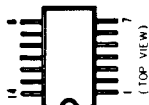
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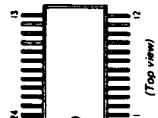
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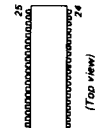
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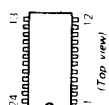
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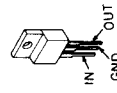
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K20131
K20137



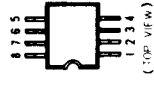
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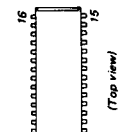
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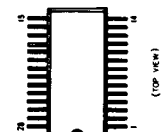
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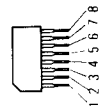
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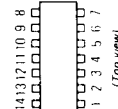
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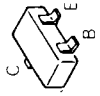
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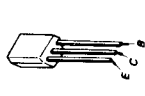
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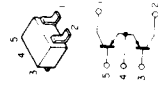
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2SA1122C
2SA1162
2SA1179
2SA812
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2SC2412K
2SC2712
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2SC3052
2SC3326N



DTC114ES
DTC143TS



FMS1FE
FMW2



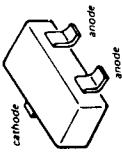
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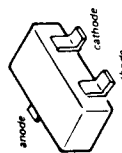
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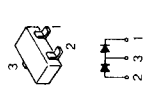
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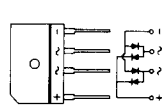
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MA157



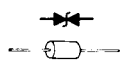
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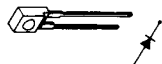
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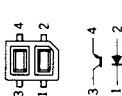
E10DS2



GL-450S



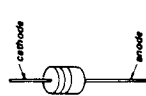
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MA153



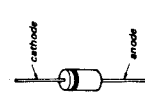
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RD15ES-B3
RD18ES-B1
RD2.0ES-B1
RD3.9JS-B
RD4.7ES-B3
RD6.2ES-B1
RD6.2ES-B2
RD6.2ES-B3
RD6.8ES-B2
RD6.8ES-B3
RD7.5ES-B1
1SS119
1SS133
1SS148
1SS202-1



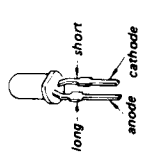
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RD12M-B2
RD12M-B3
RD5.1M-B2
RD7.5M-B1
RD9.1M-B1
1SS193
1SS220



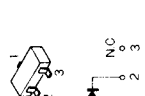
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RD2.7ES-B2
RD3.9ES-B4
1SS106
10E1
10E2



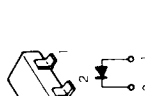
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TLR123
TLY123



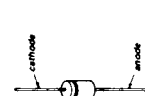
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1SS190
1SS223



1SS196




31DQ05



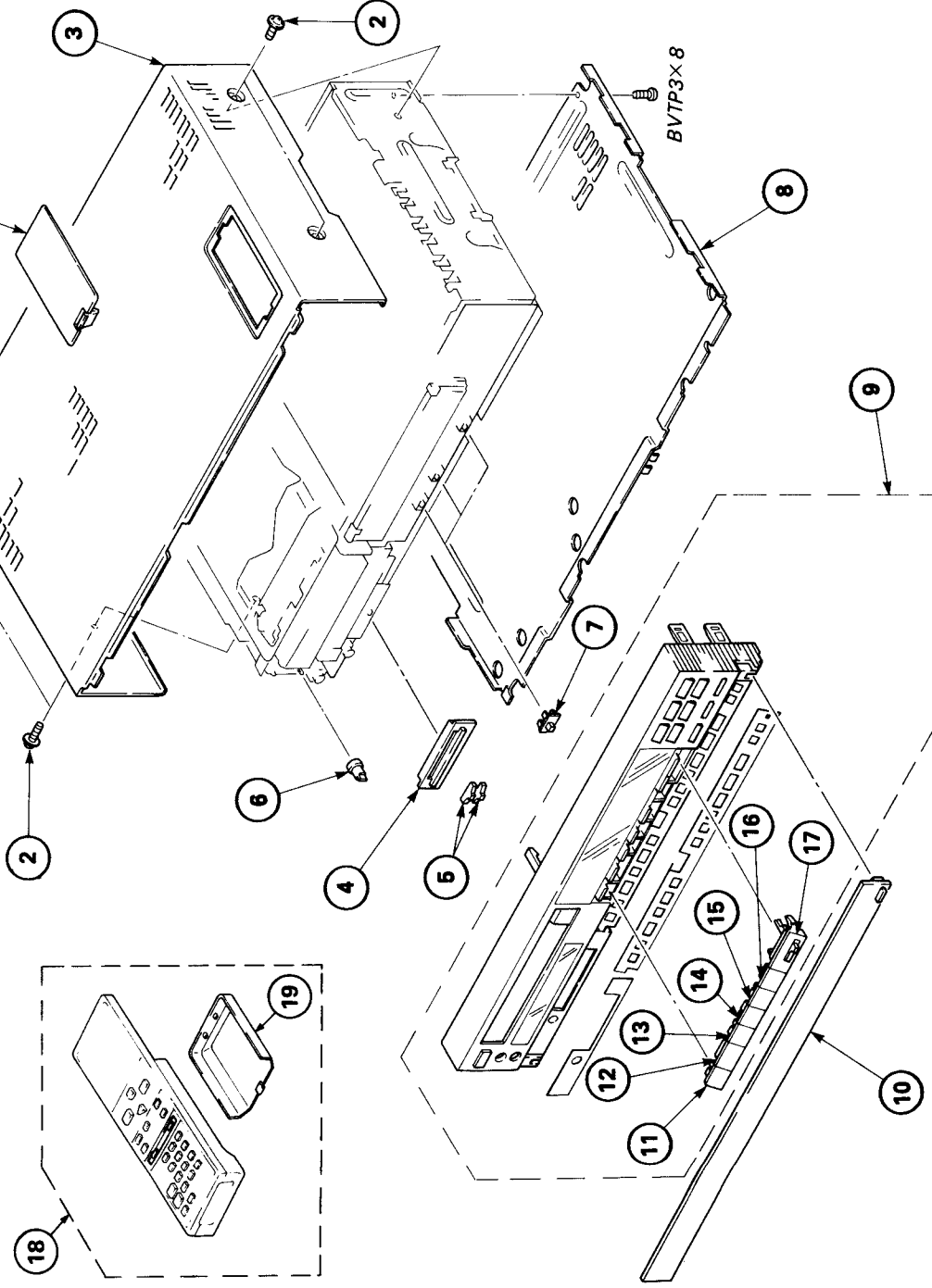
SECTION 5 EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some differences from the original one.

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

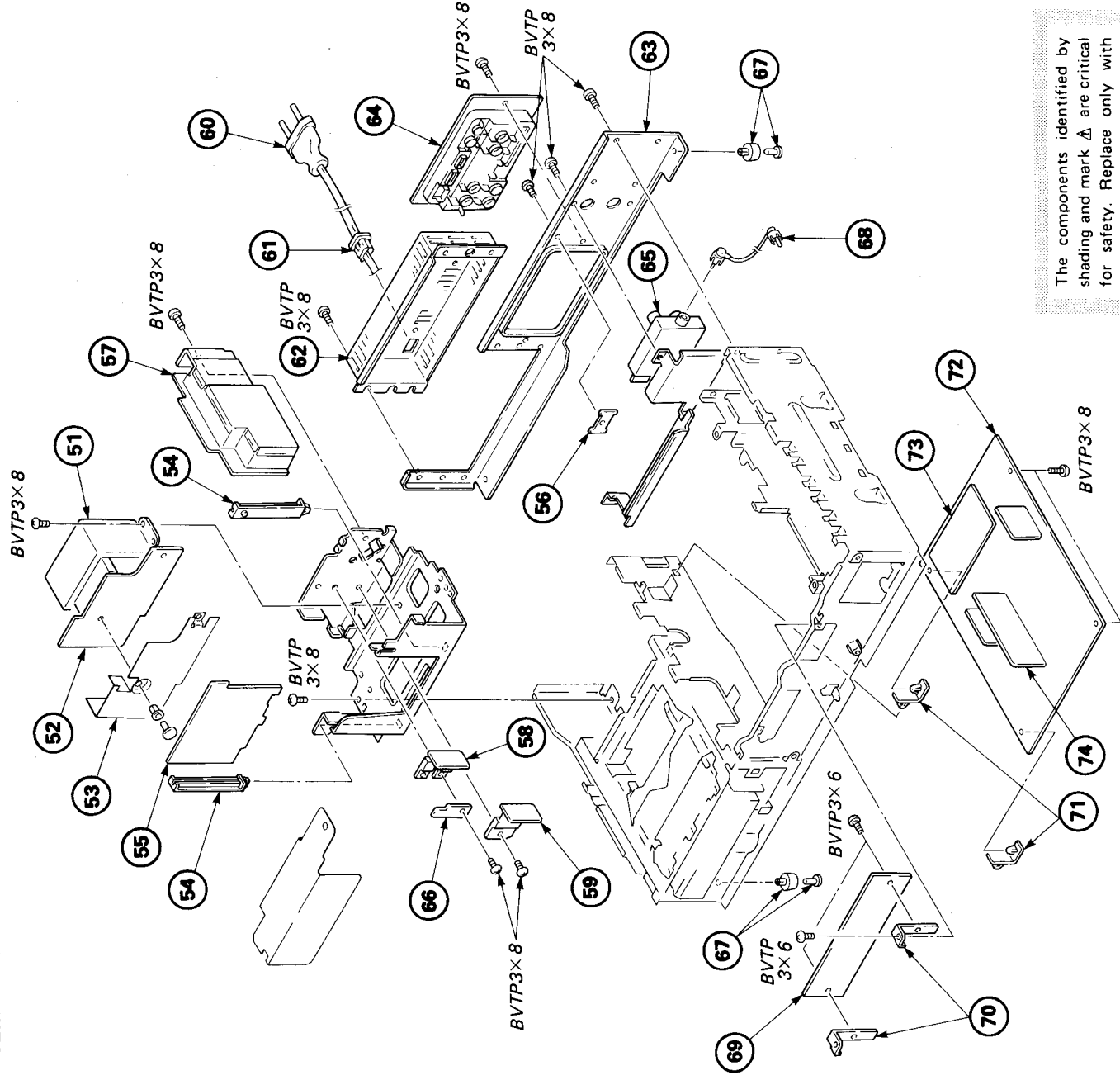
5-1. FRONT PANEL AND CASE (UPPER, LOWER) ASSEMBLIES



| No. | Part No. | Description |
|-----|---------------|-------------------|
| 1 | X-3711-957-1 | LID ASSY, PRESET |
| 2 | 4-886-821-01 | SCREW, M3 CASE |
| 3 | 3-716-941-01 | CASE, UPPER |
| 4 | X-3711-980-1 | COVER ASSY, SLIDE |
| 5 | 3-716-868-01 | KEY, SLIDE |
| 6 | 3-716-867-01 | KNOB, HP |
| 7 | 3-716-882-01 | KNOB, SLIDE |
| 8 | *3-716-913-11 | PLATE, BOTTOM |
| 9 | X-3713-401-1 | PANEL ASSY, FRONT |

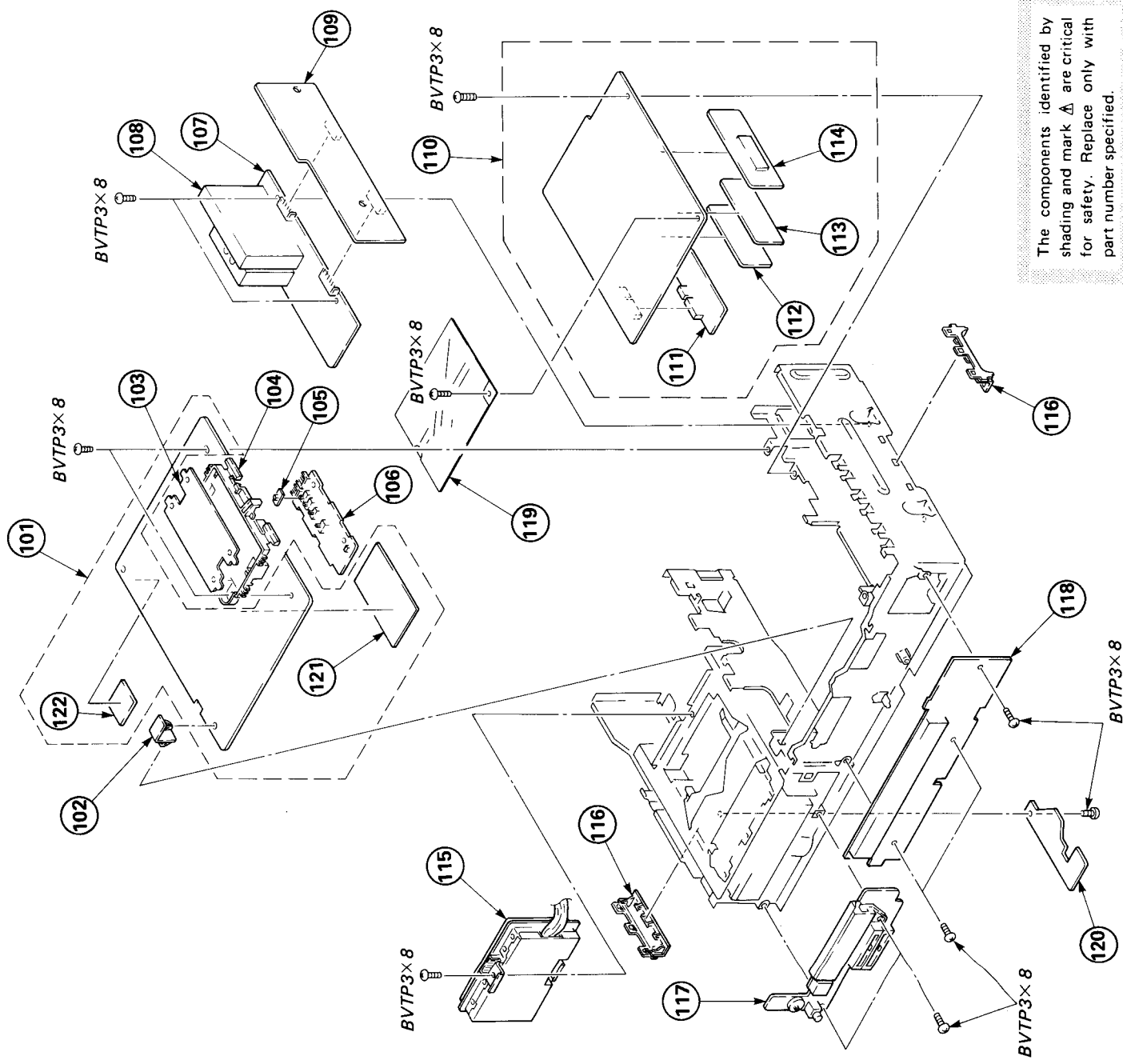
| No. | Remark | Part No. | Description | Remark |
|-----|--------|--------------|--------------------------|--------|
| 10 | | X-3711-995-1 | LID ASSY, ALUMINIUM | |
| 11 | | X-3711-953-1 | KEY ASSY, REW | |
| 12 | | X-3711-951-1 | KEY ASSY, FWD | |
| 13 | | X-3711-952-1 | KEY ASSY, FF | |
| 14 | | 3-716-856-01 | KEY, STOP | |
| 15 | | X-3711-954-1 | KEY ASSY, PAUSE | |
| 16 | | X-3711-985-1 | KEY ASSY, X2 | |
| 17 | | X-3711-981-1 | KEY ASSY, REC | |
| 18 | 11-17 | A-6767-550-A | COMMANDER ASSY (RMT-439) | 19 |
| 19 | | 2-357-280-01 | COVER, BATTERY | |

5-2. BOARD AND POWER BLOCK ASSEMBLIES



| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|-----|----------------|---------------------------|--------|-----|----------------|-------------------------|--------|
| 51 | Δ 1-448-836-11 | TRANSFORMER, POWER (T401) | | 63 | 3-713-669-01 | FRAME (A), REAR | |
| 52 | *1-622-006-11 | DS-16 BOARD | | 64 | 3-716-978-01 | PLATE, ORNAMENTAL, JACK | |
| 53 | 3-716-892-11 | SHEET (LARGE), INSULATING | | 65 | Δ 1-464-829-11 | MODULATOR, RF (REU-867) | |
| 54 | 3-680-719-11 | GUIDE, CHASSIS | | 66 | *3-716-954-01 | BRACKET, DO-1 MOUNT | |
| 55 | *1-621-994-11 | DT-63 BOARD | | 67 | 3-697-937-01 | LEG | |
| 56 | *3-716-986-01 | SHEET METAL, FTZ | | 68 | *1-555-110-00 | CABLE, PIN | |
| 57 | *A-7060-585-A | DR-35 BOARD, COMPLETE | | 69 | *A-7060-917-A | VP-1 BOARD, COMPLETE | |
| 58 | *1-621-992-11 | DO-1 BOARD | | 70 | *3-713-660-01 | HOLDER, VPS | |
| 59 | *1-621-993-11 | DL-15 BOARD | | 71 | *3-701-832-00 | HINGE, CIRCUIT BOARD | |
| 60 | Δ 1-534-817-XX | CORD, POWER | | 72 | *A-7060-845-A | VI-20 BOARD, COMPLETE | |
| 61 | *3-703-244-00 | BUSHING (2104), CORD | | 73 | *A-7068-031-A | TC-3 BOARD, COMPLETE | |
| 62 | 3-713-667-31 | COVER (A), POWER | | 74 | *A-7060-916-A | CH-44 BOARD, COMPLETE | |

5-3. BOARD ASSEMBLIES



| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|-----|----------------|-----------------------------|----------|-----|---------------|-------------------------|--------|
| 101 | *A-7060-844-B | SP-2 BOARD, COMPLETE | 121, 122 | 112 | *A-7060-913-A | NR-6 BOARD, COMPLETE | |
| 102 | *3-701-832-00 | HINGE, CIRCUIT BOARD | | 113 | *A-7060-914-A | MK-2 BOARD, COMPLETE | |
| 103 | 3-716-841-51 | SHEET, PRESET | | 114 | *A-7060-911-A | AF-20 BOARD, COMPLETE | |
| 104 | 3-716-896-01 | PRESET (MAIN) | | 115 | *A-7060-908-A | RP-36 BOARD, COMPLETE | |
| 105 | 3-713-694-01 | KNOB (P), SLIDE | | 116 | 3-716-907-01 | PROTECTOR, FRAME | |
| 106 | *A-7060-843-A | PR-13 BOARD, COMPLETE | | 117 | *A-7060-909-A | PW-30 BOARD, COMPLETE | |
| 107 | *A-7060-471-A | TU-83 BOARD, COMPLETE | | 118 | *A-7060-842-A | FT-33 BOARD, COMPLETE | |
| 108 | Δ 1-463-761-11 | TUNER, ET (BT-8838) (TU001) | | 119 | *X-3711-990-1 | PLATE (AU) ASSY, SHIELD | |
| 109 | *A-7060-482-A | TS-50 BOARD, COMPLETE | | 120 | *1-621-982-13 | NJ-11 BOARD | |
| 110 | *A-7060-841-A | AU-22 BOARD, COMPLETE | 111-114 | 121 | *A-7070-438-A | RB-2 BOARD, COMPLETE | |
| 111 | *A-7060-912-A | AD-12 BOARD, COMPLETE | | 122 | *1-623-747-11 | KM-1 BOARD | |

Diagram illustrating the assembly of the front panel (3-4) for a radio receiver. The diagram shows the front panel (3-4) being assembled onto the chassis (1). Key components and their assembly sequence are indicated by numbered circles (1 through 30) and callouts:

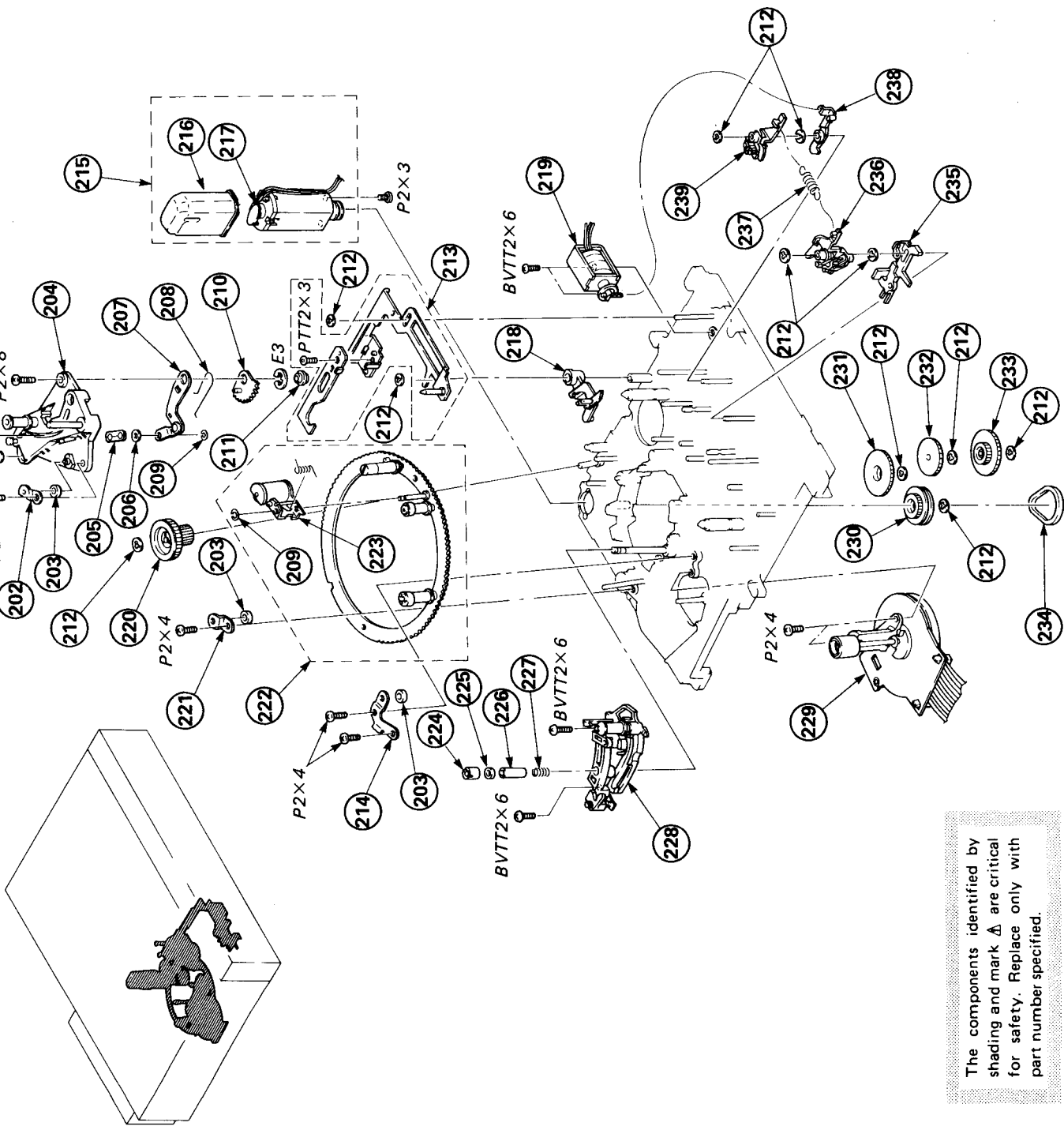
- Front Panel (3-4):** The main assembly being shown.
- Chassis (1):** The base unit.
- Assembly Sequence:**
 - 1. Mounting the front panel (3-4) onto the chassis (1).
 - 2. Mounting the front panel (3-4) onto the chassis (1).
 - 3. Mounting the front panel (3-4) onto the chassis (1).
 - 4. Mounting the front panel (3-4) onto the chassis (1).
 - 5. Mounting the front panel (3-4) onto the chassis (1).
 - 6. Mounting the front panel (3-4) onto the chassis (1).
 - 7. Mounting the front panel (3-4) onto the chassis (1).
 - 8. Mounting the front panel (3-4) onto the chassis (1).
 - 9. Mounting the front panel (3-4) onto the chassis (1).
 - 10. Mounting the front panel (3-4) onto the chassis (1).
 - 11. Mounting the front panel (3-4) onto the chassis (1).
 - 12. Mounting the front panel (3-4) onto the chassis (1).
 - 13. Mounting the front panel (3-4) onto the chassis (1).
 - 14. Mounting the front panel (3-4) onto the chassis (1).
 - 15. Mounting the front panel (3-4) onto the chassis (1).
 - 16. Mounting the front panel (3-4) onto the chassis (1).
 - 17. Mounting the front panel (3-4) onto the chassis (1).
 - 18. Mounting the front panel (3-4) onto the chassis (1).
 - 19. Mounting the front panel (3-4) onto the chassis (1).
 - 20. Mounting the front panel (3-4) onto the chassis (1).
 - 21. Mounting the front panel (3-4) onto the chassis (1).
 - 22. Mounting the front panel (3-4) onto the chassis (1).
 - 23. Mounting the front panel (3-4) onto the chassis (1).
 - 24. Mounting the front panel (3-4) onto the chassis (1).
 - 25. Mounting the front panel (3-4) onto the chassis (1).
 - 26. Mounting the front panel (3-4) onto the chassis (1).
 - 27. Mounting the front panel (3-4) onto the chassis (1).
 - 28. Mounting the front panel (3-4) onto the chassis (1).
 - 29. Mounting the front panel (3-4) onto the chassis (1).
 - 30. Mounting the front panel (3-4) onto the chassis (1).

Key components and their assembly sequence are indicated by numbered circles (1 through 30) and callouts:

- 1:** Front panel (3-4) assembly.
- 2:** Mounting the front panel (3-4) onto the chassis (1).
- 3:** Mounting the front panel (3-4) onto the chassis (1).
- 4:** Mounting the front panel (3-4) onto the chassis (1).
- 5:** Mounting the front panel (3-4) onto the chassis (1).
- 6:** Mounting the front panel (3-4) onto the chassis (1).
- 7:** Mounting the front panel (3-4) onto the chassis (1).
- 8:** Mounting the front panel (3-4) onto the chassis (1).
- 9:** Mounting the front panel (3-4) onto the chassis (1).
- 10:** Mounting the front panel (3-4) onto the chassis (1).
- 11:** Mounting the front panel (3-4) onto the chassis (1).
- 12:** Mounting the front panel (3-4) onto the chassis (1).
- 13:** Mounting the front panel (3-4) onto the chassis (1).
- 14:** Mounting the front panel (3-4) onto the chassis (1).
- 15:** Mounting the front panel (3-4) onto the chassis (1).
- 16:** Mounting the front panel (3-4) onto the chassis (1).
- 17:** Mounting the front panel (3-4) onto the chassis (1).
- 18:** Mounting the front panel (3-4) onto the chassis (1).
- 19:** Mounting the front panel (3-4) onto the chassis (1).
- 20:** Mounting the front panel (3-4) onto the chassis (1).
- 21:** Mounting the front panel (3-4) onto the chassis (1).
- 22:** Mounting the front panel (3-4) onto the chassis (1).
- 23:** Mounting the front panel (3-4) onto the chassis (1).
- 24:** Mounting the front panel (3-4) onto the chassis (1).
- 25:** Mounting the front panel (3-4) onto the chassis (1).
- 26:** Mounting the front panel (3-4) onto the chassis (1).
- 27:** Mounting the front panel (3-4) onto the chassis (1).
- 28:** Mounting the front panel (3-4) onto the chassis (1).
- 29:** Mounting the front panel (3-4) onto the chassis (1).
- 30:** Mounting the front panel (3-4) onto the chassis (1).

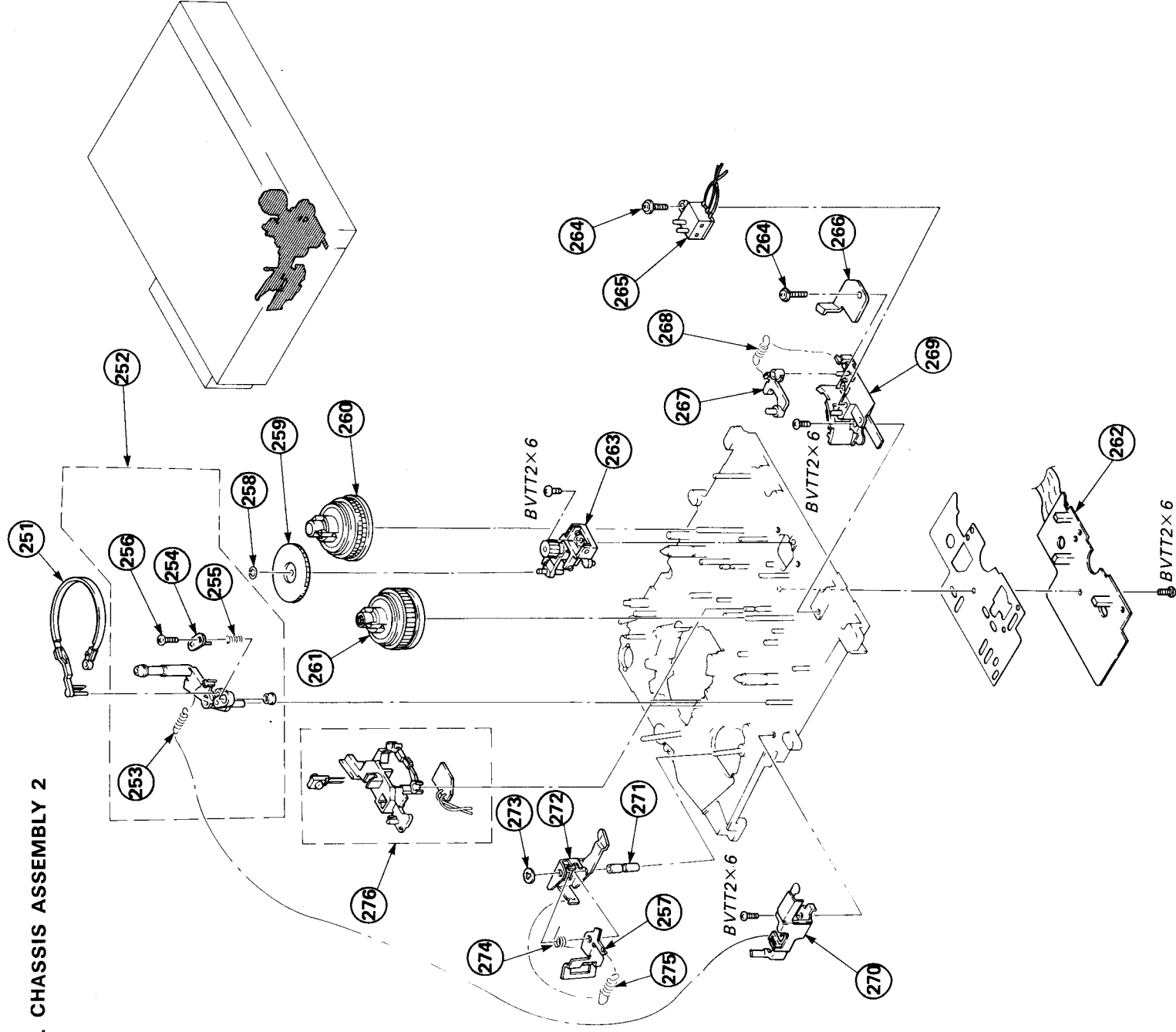
—212—

5-5. CHASSIS ASSEMBLY 1



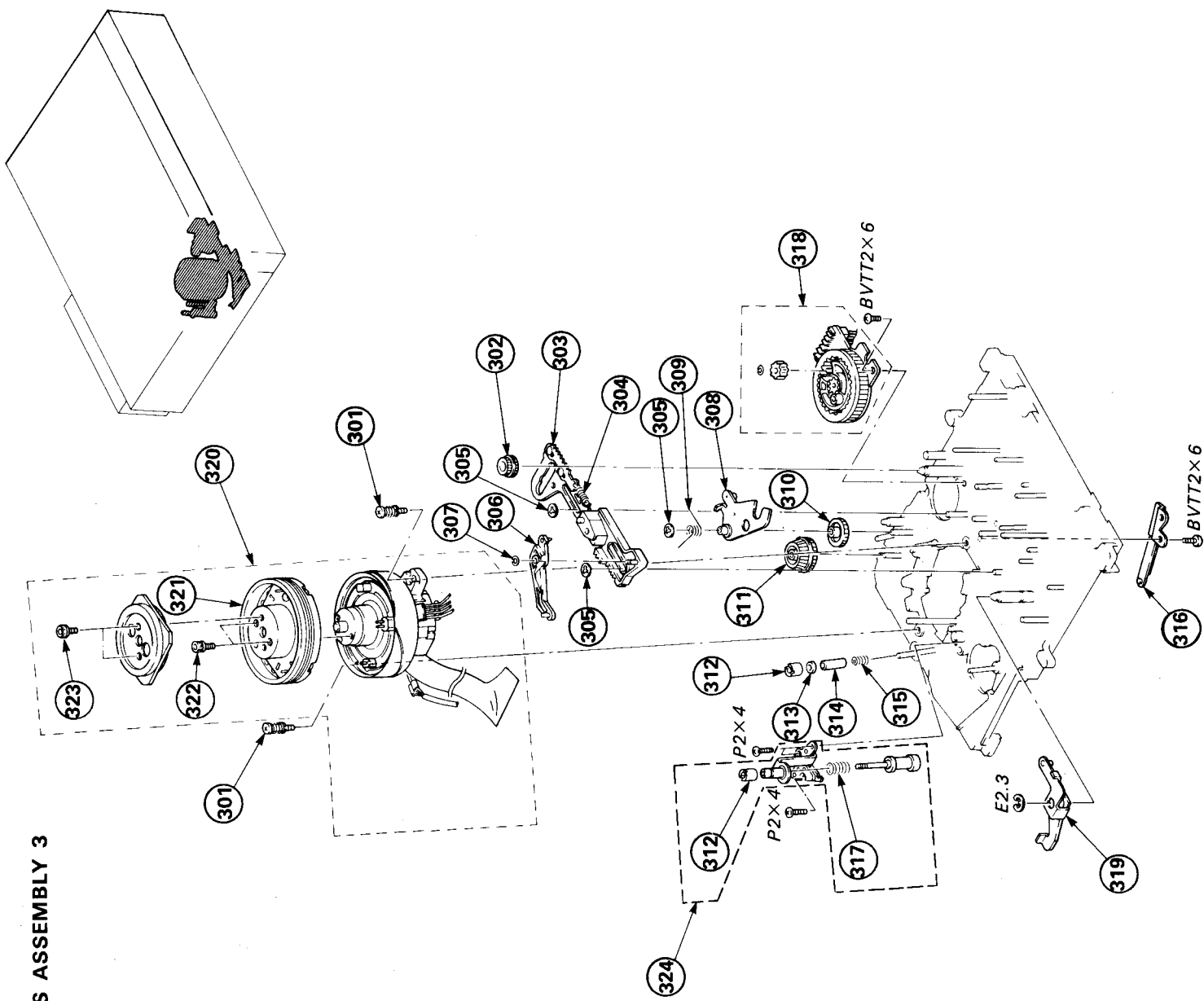
| No. | Part No. | Description | No. | Part No. | Description | Remark |
|-----|----------------|---------------------------------|-----|---------------|------------------------------------|----------|
| 201 | X-3686-502-1 | BASE ASSY, GUIDE | 221 | *3-686-911-01 | PLATE, TOP, ROLLER | |
| 202 | *3-686-503-01 | RETAINER, ROLLER | 222 | A-7040-123-A | RING ASSY, LOADING | 209, 223 |
| 203 | 3-697-538-01 | ROLLER, RING | 223 | X-3686-576-1 | ARM ASSY, PINCH ROLLER | |
| 204 | X-3686-577-1 | CHASSIS ASSY, GUIDE, SLANT | 224 | 3-686-724-01 | NUT, GUIDE | |
| 205 | 3-686-663-01 | WASHER, STOPPER, 2 GANG | 225 | *3-686-894-01 | FLANGE, #3 #4 GUIDE | |
| 206 | 3-701-436-21 | WASHER, POLYETHYLENE | 226 | 3-686-912-01 | GUIDE, #3 #4 | |
| 207 | X-3686-537-1 | ARM ASSY | 227 | 3-699-609-01 | SPRING, COMPRESSION | |
| 208 | 3-686-701-01 | SPRING | 228 | A-7040-054-A | GUIDE (P) ASSY, ENTRANCE | |
| 209 | 3-315-384-31 | WASHER, STOPPER | 229 | 8-835-247-01 | MOTOR, DC BHF-2804D (CAPSTAN) M906 | |
| 210 | 3-699-509-01 | GEAR, SECTOR | 230 | X-3686-514-1 | GEAR ASSY, NO.1 | |
| 211 | 3-686-537-01 | RETAINER, LOCK SLIDER | 231 | 3-686-508-01 | GEAR, NO.2 | |
| 212 | 3-669-465-00 | WASHER (1.5), STOPPER | 232 | 3-686-545-01 | GEAR, NO.3 | |
| 213 | A-7040-103-A | SLIDER ASSY, LOCK | 233 | 3-686-544-01 | GEAR, NO.4 | |
| 214 | *3-686-675-01 | STOPPER, RING | 234 | 3-686-546-01 | BELT, L- MOTOR | |
| 215 | A-7040-065-A | MOTOR ASSY, L (LOADING) M904 | 235 | *3-686-629-01 | SLIDER, SELECTION, UPPER & LOWER | |
| 216 | *3-686-757-01 | CAP, SHIELD, L MOTOR | 236 | X-3711-991-1 | BRAKE ASSY, S MAIN | |
| 217 | 1-161-057-00 | CAP, CERAMIC 0.033MF X C901 | 237 | 3-713-560-01 | SPRING, TENSION | |
| 218 | *3-686-636-04 | ARM, T-S RELEASE | 238 | *3-686-635-01 | ARM, P | |
| 219 | Δ 1-454-377-31 | SOLENOID, PLUNGER (BRAKE) PM901 | 239 | X-3686-574-1 | BRAKE ASSY, MAIN, TAKE-UP | |
| 220 | 3-697-518-01 | GEAR, NO.10 | | | | |

5-6. CHASSIS ASSEMBLY 2

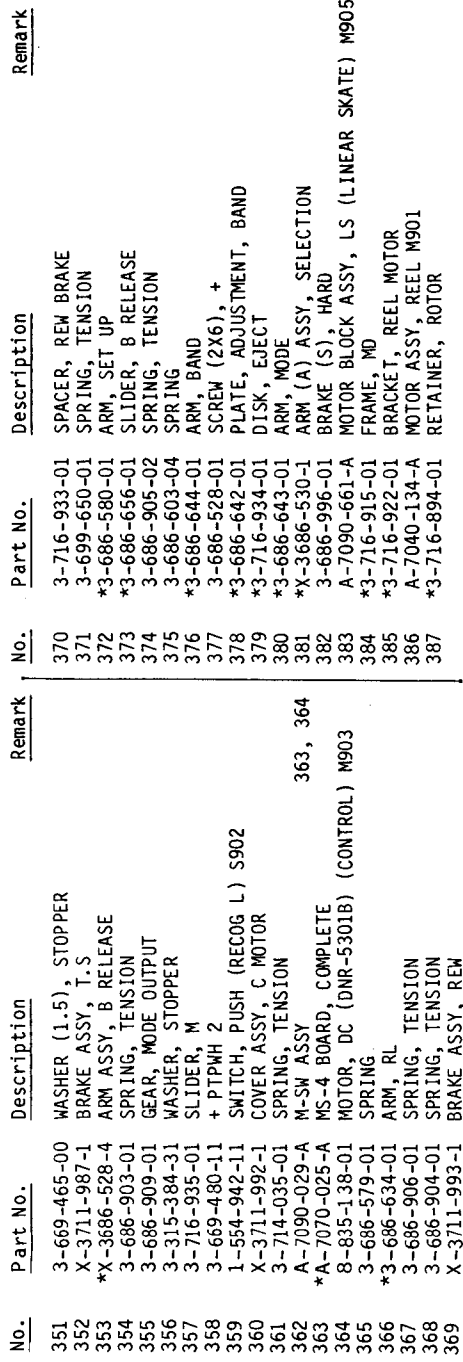


| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|-----|---------------|-------------------------------|---------|-----|---------------|-----------------------------|--------|
| 251 | X-3686-531-1 | BAND ASSY, TENSION REGULATOR | | 264 | 3-669-480-11 | + PTPWH 2 | |
| 252 | A-7040-071-A | ARM ASSY, TENSION REGULATOR | 253-256 | 265 | 1-554-942-11 | SWITCH, PUSH (RECOG R) S901 | |
| 253 | 3-699-519-01 | SPRING, TENSION | | 266 | *3-686-991-01 | STOPPER, REEL TABLE | |
| 254 | *X-3686-523-1 | PLATE ASSY, TENSION REGULATOR | | 267 | *3-686-637-01 | BRAKE (S), SOFT | |
| 255 | 3-669-666-00 | SPRING, COMPRESSION | | 268 | 3-696-082-01 | SPRING, TENSION | |
| 256 | 3-697-546-01 | SCREW (+M2X6), SPECIAL | | 269 | *3-686-760-01 | GUIDE, BAND | |
| 257 | *3-686-641-01 | ARM, PINCH PRESS | | 270 | *X-3686-525-1 | HOOK ASSY, SPRING | |
| 258 | 3-315-384-31 | WASHER, STOPPER | | 271 | *3-686-567-01 | SLEEVE, PINCH PRESS | |
| 259 | X-3686-763-1 | GEAR (B) ASSY, DRIVING | | 272 | *3-686-660-01 | ARM, PINCH LIMITER | |
| 260 | X-3711-998-1 | TABEL ASSY, REEL, TAKE-UP | | 273 | 3-669-465-00 | WASHER (1.5), STOPPER | |
| 261 | X-3711-962-1 | TABEL ASSY, SUPPLY REEL | | 274 | 3-686-568-01 | SPRING, TORSION | |
| 262 | *A-7060-411-A | RS-17 BOARD, COMPLETE | | 275 | 3-686-885-01 | SPRING, TENSION | |
| 263 | X-3711-963-1 | DRIVING COMPLETE ASSY | | 276 | *A-7070-024-A | LD-1 BOARD, COMPLETE | |

5-7. CHASSIS ASSEMBLY 3



| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|-----|---------------|-----------------------------|--------|-----|---------------|-------------------------------|-------------|
| 301 | X-3686-915-1 | SCREW ASSY, FITTING | | 313 | *3-686-894-01 | FLANGE, #3 #4 GUIDE | |
| 302 | 3-686-702-01 | GEAR, DRIVING, GUIDE, SLANT | | 314 | 3-686-912-01 | GUIDE, #3 #4 | |
| 303 | *X-3686-548-2 | SLIDER SUB ASSY, L | | 315 | 3-699-609-01 | SPRING, COMPRESSION | |
| 304 | 3-686-886-01 | SPRING, TENSION | | 316 | 1-535-535-11 | TERMINAL, SHAFT GROUND | |
| 305 | 3-669-465-00 | WASHER (1.5), STOPPER | | 317 | 3-699-514-01 | SPRING, COMPRESSION | |
| 306 | *X-3686-518-3 | ARM ASSY | | 318 | X-3712-403-1 | L-SW ASSY | |
| 307 | 3-315-384-31 | WASHER, STOPPER | | 319 | *X-3686-509-1 | LEVER ASSY, PINCH PRESS | |
| 308 | X-3686-579-1 | CHANGE ASSY, DRIVE | | 320 | A-7048-128-A | DRUM ASSY (DGH-12E-R) | 321-323 |
| 309 | 3-686-540-01 | SPRING, TORSION | | 321 | A-7049-147-A | DRUM ASSY, UPPER, ROTARY | (DGR-12E-R) |
| 310 | 3-686-535-01 | GEAR, NO.8 | | 322 | 3-686-403-01 | SCREW (2X5), BOLT WASHER | |
| 311 | 3-686-539-01 | GEAR, NO.9 | | 323 | 3-686-422-01 | WASHER (2X2.7), BOLT, HOLE | |
| 312 | 3-686-724-01 | NUT, GUIDE | | 324 | A-7040-058-A | GUIDE BLOCK COMPLETE ASSY, #5 | 312, 317 |



5-9. HARDWARE LIST

| SCREW | | DRUM*** | |
|--------------|------------------------------|--------------|---------------------|
| SCREW | | SCREW | |
| 7-621-255-15 | SCREW +PTT 2X3 (S) | 7-621-255-15 | SCREW +P 2X3 |
| 7-621-255-20 | SCREW +P 2X4 | 7-621-255-25 | SCREW +P 2X4 |
| 7-621-255-45 | SCREW +BVTP 2X6 (S) | 7-621-734-09 | SET-SCT, HEX, 2.6X3 |
| 7-621-255-50 | SCREW +P 2X8 | | |
| 7-621-772-20 | SCREW +B 2X5 | | |
| 7-627-553-48 | SCREW, PRECISION +P 2X4 | | |
| 7-628-253-00 | SCREW +PS 2X4 | | |
| 7-628-254-00 | SCREW +PS 2.6X5 | | |
| 7-682-549-09 | SCREW +B 3X10 | | |
| 7-685-101-11 | SCREW +P 2X3 NON-SLIT TYPE 2 | | |
| 7-685-102-19 | SCREW +P 2X4 NON-SLIT TYPE 2 | | |
| 7-685-645-79 | SCREW +BVTP 3X6 TYPE2 IT-3 | | |
| 7-685-645-79 | SCREW +BVTP 3X6 TYPE2 | | |
| 7-685-646-79 | SCREW +BVTP 3X8 TYPE2 IT-3 | | |
| 7-685-646-79 | SCREW +BVTP 3X8 TYPE2 | | |
| STOP RING | | | |
| 7-624-101-01 | STOP RING 1.2 (E TYPE) | | |
| 7-624-102-04 | STOP RING 1.5, TYPE -E | | |
| 7-624-105-04 | STOP RING 2.3, TYPE -E | | |
| 7-624-106-04 | STOP RING 3.0, TYPE -E | | |
| 7-624-190-71 | STOP RING 5, TYPE-CS | | |

SECTION 6 ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- **RESISTORS**
All resistors are in ohms.

The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Items marked "***" are not stocked since they are seldom required for routine service. Some delay should be expected.

anticipated when ordering these items. -XX, -X, mean standardized parts, so they may have some difference from the original one.

SEMICONDUCTORS

In each case, U : μ , for example:

$$UA \dots \mu A \dots, UPA \dots \mu PA \dots,$$
$$\text{UPB} \dots \mu\text{PB} \dots \text{UPC} \dots \mu\text{PC} \dots$$
UPD...: μ PD...

CAPACITORS

MF: μF , PF: μF

COILS

MMH: mH, uH: μ H

| Ref.No | Part No. | Description | Remark |
|---------------|------------------------------------------|-------------|--------|
| *A-7060-909-A | PW-30 BOARD, COMPLETE ***** | | |
| *3-662-205-00 | HOLDER (E), LED | | |
| *3-716-919-01 | HOLDER, LEVEL INDICATION TUBE | | |
| | CAPACITOR | | |
| C201 | 1-163-023-00 CERAMIC CHIP 0.01MF | 10% | |
| C302 | 1-124-257-00 ELECT 2.2MF | 20% | 50V |
| C303 | 1-163-021-00 CERAMIC CHIP 0.01MF | | 35V |
| C402 | 1-124-257-00 ELECT 2.2MF | 20% | 50V |
| C403 | 1-163-021-00 CERAMIC CHIP 0.01MF | | 35V |
| | COMPOSITION CIRCUIT BLOCK | | |
| CP201 | 1-232-957-11 COMPOSITION CIRCUIT BLOCK | | |
| CP202 | 1-232-967-11 COMPOSITION CIRCUIT BLOCK | | |
| | DIODE | | |
| D101 | 8-719-812-33 DIODE TLG123A | | |
| D102 | 8-719-118-29 DIODE 1SS220 | | |
| D103 | 8-719-105-32 DIODE RD2.7M-B2 | | |
| D104 | 8-719-907-29 DIODE EQA11-09A | | |
| D105 | 8-719-907-29 DIODE EQA11-09A | | |
| | IC | | |
| IC101 | 8-741-138-70 IC BX-1387 | | |
| IC201 | 8-759-745-64 IC NJM4560M | | |
| IC202 | 8-759-933-54 IC BA6800AF | | |
| | JACK | | |
| J201 | 1-507-792-21 JACK | | |
| | INDICATOR TUBE | | |
| ND201 | 1-519-406-11 INDICATOR TUBE, FLUORESCENT | | |
| | TRANSISTOR | | |
| Q211 | 8-729-100-76 TRANSISTOR 2SA812 | | |
| Q212 | 8-729-100-76 TRANSISTOR 2SA812 | | |
| Q213 | 8-729-100-76 TRANSISTOR 2SA812 | | |
| | RESISTOR | | |
| R101 | 1-216-041-00 METAL CHIP 470 | 5% | 1/10W |
| R103 | 1-216-073-00 METAL CHIP 10K | 5% | 1/10W |
| R211 | 1-216-083-00 METAL CHIP 27K | 5% | 1/10W |
| R213 | 1-216-057-00 METAL CHIP 2.2K | 5% | 1/10W |
| R214 | 1-216-073-00 METAL CHIP 10K | 5% | 1/10W |
| R215 | 1-216-057-00 METAL CHIP 2.2K | 5% | 1/10W |
| R216 | 1-216-073-00 METAL CHIP 10K | 5% | 1/10W |
| R217 | 1-216-073-00 METAL CHIP 10K | 5% | 1/10W |
| R218 | 1-216-073-00 METAL CHIP 10K | 5% | 1/10W |
| R241 | 1-216-073-00 METAL CHIP 10K | 5% | 1/10W |
| R301 | 1-216-017-00 METAL CHIP 47 | 5% | 1/10W |

RP-36

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|--------|---------------|-------------------------|--------|--------|--------------|-----------------------|--------|
| C230 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | L204 | 1-407-158-XX | MICRO INDUCTOR 12UH | |
| C231 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 10% | L205 | 1-408-970-21 | MICRO INDUCTOR 10UH | |
| C232 | 1-123-611-00 | ELECT 1MF | 20% | L206 | 1-407-161-XX | MICRO INDUCTOR 22UH | |
| C233 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% | L207 | 1-408-794-00 | INDUCTOR CHIP 270UH | |
| C237 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 10% | L208 | 1-408-794-00 | INDUCTOR CHIP 270UH | |
| C238 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 10% | L302 | 1-407-163-XX | MICRO INDUCTOR 33UH | |
| C239 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | L401 | 1-408-948-00 | MICRO INDUCTOR 220UH | |
| C240 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V | L402 | 1-408-970-21 | MICRO INDUCTOR 10UH | |
| C241 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V | | TRANSISTOR | | |
| C301 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | | | | |
| C302 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | Q101 | 8-729-202-38 | TRANSISTOR 2SC3326N | |
| C303 | 1-124-462-00 | ELECT 10MF | 16V | Q102 | 8-729-202-38 | TRANSISTOR 2SC3326N | |
| C304 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 20% | Q103 | 8-729-901-05 | TRANSISTOR DTA124EK | |
| C305 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | Q104 | 8-729-312-22 | TRANSISTOR 2SA1122 | |
| C306 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V | Q105 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| C307 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | Q201 | 8-729-202-38 | TRANSISTOR 2SC3326N | |
| C308 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | Q202 | 8-729-202-38 | TRANSISTOR 2SC3326N | |
| C309 | 1-123-617-00 | ELECT 10MF | 16V | Q203 | 8-729-901-05 | TRANSISTOR DTA124EK | |
| C401 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 20% | Q301 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| C402 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 10% | Q302 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| C403 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% | Q303 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| C404 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | Q304 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| C405 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | Q307 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| C406 | 1-163-121-00 | CERAMIC CHIP 150PF | 5% | Q308 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| C407 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | Q402 | 8-729-100-76 | TRANSISTOR 2SA812 | |
| | | CONNECTOR | | Q403 | 8-729-117-54 | TRANSISTOR 2SA1175 | |
| | | | | Q404 | 8-729-312-22 | TRANSISTOR 2SA1122 | |
| CN001 | 1-562-629-11 | SOCKET, CONNECTOR (19P) | | | RESISTOR | | |
| CN002 | *1-564-001-11 | PIN, CONNECTOR 2P | | R001 | 1-247-293-00 | CARBON 27 5% | 1/4W |
| CN003 | *1-564-005-00 | PIN, CONNECTOR 6P | | R101 | 1-216-065-00 | METAL CHIP 4.7K 5% | 1/10W |
| CN004 | *1-564-004-00 | PIN, CONNECTOR 5P | | R102 | 1-216-065-00 | METAL CHIP 4.7K 5% | 1/10W |
| CN005 | *1-564-007-00 | PIN, CONNECTOR 8P | | R103 | 1-216-065-00 | METAL CHIP 4.7K 5% | 1/10W |
| CN006 | *1-564-002-00 | PIN, CONNECTOR 3P | | R104 | 1-216-065-00 | METAL CHIP 4.7K 5% | 1/10W |
| CN007 | *1-564-002-00 | PIN, CONNECTOR 3P | | R105 | 1-216-081-00 | METAL CHIP 22K 5% | 1/10W |
| CN008 | *1-564-017-00 | PIN, CONNECTOR 7P | | R106 | 1-216-083-00 | METAL CHIP 27K 5% | 1/10W |
| | | DIODE | | R107 | 1-216-082-00 | METAL CHIP 24K 5% | 1/10W |
| D101 | 8-719-100-03 | DIODE 1S2835 | | R108 | 1-216-082-00 | METAL CHIP 24K 5% | 1/10W |
| | | IC | | R109 | 1-216-055-00 | METAL CHIP 1.8K 5% | 1/10W |
| IC001 | 8-752-003-40 | IC CX20034 | | R110 | 1-216-089-00 | METAL CHIP 47K 5% | 1/10W |
| IC002 | 8-752-003-40 | IC CX20034 | | R111 | 1-216-081-00 | METAL CHIP 22K 5% | 1/10W |
| | | COIL | | R112 | 1-216-083-00 | METAL CHIP 27K 5% | 1/10W |
| L101 | 1-408-791-00 | INDUCTOR CHIP 150UH | | R113 | 1-216-082-00 | METAL CHIP 24K 5% | 1/10W |
| L103 | 1-407-189-XX | MICRO INDUCTOR 15UH | | R114 | 1-216-082-00 | METAL CHIP 24K 5% | 1/10W |
| L104 | 1-407-189-XX | MICRO INDUCTOR 15UH | | R115 | 1-216-055-00 | METAL CHIP 1.8K 5% | 1/10W |
| L105 | 1-408-970-21 | MICRO INDUCTOR 10UH | | | | | |
| L106 | 1-407-161-XX | MICRO INDUCTOR 22UH | | R116 | 1-216-089-00 | METAL CHIP 47K 5% | 1/10W |
| | | | | R117 | 1-216-053-00 | METAL CHIP 1.5K 5% | 1/10W |
| L107 | 1-408-794-00 | INDUCTOR CHIP 270UH | | R118 | 1-216-035-00 | METAL CHIP 270 5% | 1/10W |
| L108 | 1-408-794-00 | INDUCTOR CHIP 270UH | | R119 | 1-216-025-00 | METAL CHIP 100 5% | 1/10W |
| L201 | 1-408-791-00 | INDUCTOR CHIP 150UH | | R120 | 1-216-025-00 | METAL CHIP 100 5% | 1/10W |
| L203 | 1-407-158-XX | MICRO INDUCTOR 12UH | | R121 | 1-216-053-00 | METAL CHIP 1.5K 5% | 1/10W |
| | | | | R122 | 1-216-683-11 | METAL CHIP 22K 0.50% | 1/16W |
| | | | | R123 | 1-216-684-11 | METAL CHIP 24K 0.50% | 1/16W |

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark |
|-------------------------------------|--------------|-----------------------|---------------|
| R126 | 1-216-061-00 | METAL CHIP | 1/10W |
| R127 | 1-216-089-00 | METAL CHIP | 3.3K 5% |
| R128 | 1-216-049-00 | METAL CHIP | 4.7K 5% |
| R129 | 1-216-023-00 | METAL CHIP | 1K 5% |
| R130 | 1-216-023-00 | METAL CHIP | 82 5% |
| R131 | 1-216-061-00 | METAL CHIP | 82 5% |
| R134 | 1-216-097-00 | METAL CHIP | 3.3K 5% |
| R135 | 1-216-097-00 | METAL CHIP | 100K 5% |
| R201 | 1-216-065-00 | METAL CHIP | 1/10W |
| R202 | 1-216-065-00 | METAL CHIP | 4.7K 5% |
| R203 | 1-216-065-00 | METAL CHIP | 4.7K 5% |
| R204 | 1-216-065-00 | METAL CHIP | 4.7K 5% |
| R205 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R206 | 1-216-083-00 | METAL CHIP | 27K 5% |
| R207 | 1-216-082-00 | METAL CHIP | 24K 5% |
| R208 | 1-216-082-00 | METAL CHIP | 24K 5% |
| R209 | 1-216-055-00 | METAL CHIP | 1.8K 5% |
| R210 | 1-216-089-00 | METAL CHIP | 4.7K 5% |
| R211 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R212 | 1-216-083-00 | METAL CHIP | 27K 5% |
| R213 | 1-216-082-00 | METAL CHIP | 24K 5% |
| R214 | 1-216-082-00 | METAL CHIP | 24K 5% |
| R215 | 1-216-055-00 | METAL CHIP | 1.8K 5% |
| R216 | 1-216-089-00 | METAL CHIP | 4.7K 5% |
| R217 | 1-216-053-00 | METAL CHIP | 1.5K 5% |
| R218 | 1-216-049-00 | METAL CHIP | 1K 5% |
| R219 | 1-216-025-00 | METAL CHIP | 100 5% |
| R220 | 1-216-025-00 | METAL CHIP | 100 5% |
| R221 | 1-216-053-00 | METAL CHIP | 1.5K 5% |
| R224 | 1-216-067-00 | METAL CHIP | 5.6K 5% |
| R225 | 1-216-067-00 | METAL CHIP | 5.6K 5% |
| R229 | 1-216-023-00 | METAL CHIP | 82 5% |
| R230 | 1-216-023-00 | METAL CHIP | 82 5% |
| R231 | 1-216-061-00 | METAL CHIP | 3.3K 5% |
| R232 | 1-216-061-00 | METAL CHIP | 3.3K 5% |
| R233 | 1-216-061-00 | METAL CHIP | 3.3K 5% |
| R234 | 1-216-097-00 | METAL CHIP | 100K 5% |
| R235 | 1-216-097-00 | METAL CHIP | 100K 5% |
| R301 | 1-216-089-00 | METAL CHIP | 4.7K 5% |
| R302 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R303 | 1-216-045-00 | METAL CHIP | 680 5% |
| R304 | 1-216-091-00 | METAL CHIP | 56K 5% |
| R305 | 1-216-061-00 | METAL CHIP | 3.3K 5% |
| R306 | 1-216-085-00 | METAL CHIP | 33K 5% |
| R307 | 1-216-077-00 | METAL CHIP | 15K 5% |
| R308 | 1-216-039-00 | METAL CHIP | 390 5% |
| R309 | 1-216-047-00 | METAL CHIP | 820 5% |
| R310 | 1-216-035-00 | METAL CHIP | 270 5% |
| R311 | 1-216-041-00 | METAL CHIP | 470 5% |
| R401 | 1-216-085-00 | METAL CHIP | 33K 5% |
| R402 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R403 | 1-216-029-00 | METAL CHIP | 150 5% |
| R404 | 1-216-033-00 | METAL CHIP | 220 5% |
| R405 | 1-216-017-00 | METAL CHIP | 47 5% |
| R406 | 1-216-005-00 | METAL CHIP | 15 5% |
| R407 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R408 | 1-216-057-00 | METAL CHIP | 2.2K 5% |
| R421 | 1-216-295-00 | METAL CHIP | 0 5% |
| R423 | 1-216-295-00 | METAL CHIP | 0 5% |
| RV101 | 1-228-920-00 | RES, ADJ, CARBON 2.2K | 1/10W |
| RV102 | 1-228-920-00 | RES, ADJ, CARBON 2.2K | 1/10W |
| RV201 | 1-228-920-00 | RES, ADJ, CARBON 2.2K | 1/10W |
| RV202 | 1-228-920-00 | RES, ADJ, CARBON 2.2K | 1/10W |
| ***** | | | |
| *A-7060-844-A SP-2 BOARD, COMPLETE | | | |
| ***** | | | |
| (Including the RB-2 and KM-1 board) | | | |
| ***** | | | |
| CAPACITOR | | | |
| C001 | 1-123-875-11 | ELECT | 10MF 20% 50V |
| C002 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C003 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% 50V |
| C004 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% 50V |
| C020 | 1-123-875-11 | ELECT | 10MF 20% 50V |
| C021 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C022 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C023 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C024 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C025 | 1-123-875-11 | ELECT | 10MF 20% 50V |
| C030 | 1-123-875-11 | ELECT | 10MF 20% 50V |
| C031 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C032 | 1-163-093-00 | CERAMIC CHIP 10PF | 5% 50V |
| C033 | 1-163-093-00 | CERAMIC CHIP 10PF | 5% 50V |
| C050 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C051 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C080 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% 50V |
| C081 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% 50V |
| C082 | 1-131-345-00 | TANTALUM 0.47MF | 35V |
| C083 | 1-124-261-00 | ELECT | 10MF 20% 50V |
| C084 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C085 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C201 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% 50V |
| C202 | 1-124-908-11 | ELECT | 22MF 20% 25V |
| C203 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 10% 25V |
| C204 | 1-124-463-00 | ELECT | 0.1MF 20% 50V |
| C205 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C206 | 1-124-283-00 | ELECT | 4.7MF 20% 16V |
| C207 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C208 | 1-124-258-00 | ELECT | 3.3MF 20% 50V |
| C209 | 1-124-247-00 | ELECT | 10MF 20% 25V |
| C210 | 1-124-247-00 | ELECT | 10MF 20% 25V |
| C211 | 1-124-247-00 | ELECT | 10MF 20% 25V |
| C212 | 1-124-247-00 | ELECT | 10MF 20% 25V |

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|--------|--------------|-----------------------|--------|--------|--------------|-----------------------|--------|
| C212 | 1-124-247-00 | ELECT | 10MF | C501 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C213 | 1-124-255-00 | ELECT | 1MF | C502 | 1-163-131-00 | CERAMIC CHIP 390PF | 10% |
| C214 | 1-124-499-00 | ELECT | 1MF | C600 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C215 | 1-124-499-00 | ELECT | 1MF | C601 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 25V |
| C216 | 1-124-229-00 | ELECT | 33MF | C602 | 1-124-462-00 | ELECT | 10% |
| C217 | 1-124-229-00 | ELECT | 33MF | C603 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 20% |
| C218 | 1-124-229-00 | ELECT | 33MF | C604 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C219 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | C605 | 1-163-109-00 | CERAMIC CHIP 47PF | 50V |
| C220 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | C606 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% |
| C221 | 1-123-875-11 | ELECT | 10MF | C607 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% |
| C222 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | C608 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C223 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | C609 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C224 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | C610 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C225 | 1-123-875-11 | ELECT | 10MF | C611 | 1-124-462-00 | ELECT | 16V |
| C226 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | C612 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C227 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V | C613 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% |
| C228 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 10% | C614 | 1-124-462-00 | ELECT | 20% |
| C229 | 1-123-875-11 | ELECT | 10MF | C615 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C230 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% | C616 | 1-124-465-00 | ELECT | 20% |
| C231 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% | C617 | 1-124-258-00 | ELECT | 20% |
| C232 | 1-163-209-11 | CERAMIC CHIP 0.0015MF | 5% | C618 | 1-124-239-00 | ELECT | 20% |
| C233 | 1-163-209-11 | CERAMIC CHIP 0.0015MF | 5% | C619 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% |
| C234 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | C620 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C235 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | C621 | 1-163-099-00 | CERAMIC CHIP 18PF | 5% |
| C236 | 1-163-019-00 | CERAMIC CHIP 0.0068MF | 10% | C624 | 1-163-085-00 | CERAMIC CHIP 2PF | 0.25PF |
| C237 | 1-124-284-00 | ELECT | 10MF | C627 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% |
| C238 | 1-124-499-11 | ELECT | 1MF | C628 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C239 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | C629 | 1-124-462-00 | ELECT | 16V |
| C240 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 10% | C630 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 20% |
| C241 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 10% | C632 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C242 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% | C633 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C243 | 1-124-277-11 | ELECT | 4.7MF | C634 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C244 | 1-123-875-11 | ELECT | 10MF | C635 | 1-124-462-00 | ELECT | 16V |
| C245 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V | C636 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 20% |
| C246 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 10% | C637 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C247 | 1-124-767-00 | ELECT | 2.2MF | C638 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C248 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | C639 | 1-124-462-00 | ELECT | 16V |
| C249 | 1-124-499-11 | ELECT | 1MF | C645 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 20% |
| C250 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% | C646 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C251 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 10% | C647 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C261 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 10% | C648 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C262 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 10% | C649 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C264 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% | C650 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C470 | 1-124-177-00 | ELECT | 0.15MF | C651 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C471 | 1-163-034-00 | CERAMIC CHIP 0.033MF | 10% | C652 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C472 | 1-163-077-00 | CERAMIC CHIP 0.1MF | 25V | C653 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C473 | 1-163-034-00 | CERAMIC CHIP 0.033MF | 10% | C654 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C485 | 1-130-495-00 | MYLAR | 0.1MF | C701 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 10% |
| C490 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V | C702 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 10% |
| C491 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V | C703 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 5% |
| C492 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 10% | C704 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 10% |
| C493 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 10% | C705 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 10% |
| C500 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V | C706 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 10% |

When indicating parts by reference number, please include the board name.

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark |
|-------------|--------------|---------------------|------------|
| D701 | 8-719-100-05 | DIODE 1S2837 | |
| D702 | 8-719-100-03 | DIODE 1S2835 | |
| FILTER | | | |
| FL701 | 1-235-829-11 | BPF (15KHz) | |
| FL702 | 1-235-830-11 | BPF (45KHz) | |
| IC | | | |
| IC001 | 8-752-800-76 | IC CXP5048H-069Q | |
| IC002 | 8-752-800-91 | IC CXP5048H-070Q | |
| IC003 | 8-759-112-01 | IC UPD75104G-519-1B | |
| IC004 | 8-759-202-45 | IC TC4066BF | |
| IC005 | 8-759-201-61 | IC TC40H004F | |
| IC007 | 8-759-801-60 | IC LB1640N | |
| IC008 | 8-759-913-67 | IC MB3763P | |
| IC009 | 8-759-908-81 | IC MB3763PF | |
| IC010 | 8-759-920-94 | IC MSM6411B-19RS | |
| IC011 | 8-759-200-68 | IC TC4011BF | |
| IC201 | 8-759-803-47 | IC LA5005M | |
| IC202 | 8-759-100-94 | IC UPC358G2 | |
| IC204 | 8-759-929-55 | IC MB64H428PF | |
| IC205 | 8-759-932-07 | IC MB674101PF | |
| IC206 | 8-759-701-43 | IC NJM3414D | |
| IC207 | 8-759-202-45 | IC CX20114 | |
| IC208 | 8-759-802-79 | IC LB1616M | |
| IC209 | 8-759-100-94 | IC UPC358G2 | |
| IC210 | 8-752-003-50 | IC CX20035 | |
| IC211 | 8-759-925-66 | IC BA6303F | |
| IC212 | 8-759-701-39 | IC NJM3403AM | |
| IC213 | 8-759-202-45 | IC TC4066BF | |
| IC215 | 8-759-100-94 | IC UPC358G2 | |
| IC216 | 8-759-200-81 | IC TC4053BF | |
| IC220 | 8-759-200-90 | IC TC4538BF | |
| IC500 | 8-759-141-04 | IC UPD75106G-529-1B | |
| IC501 | 8-759-200-81 | IC TC4053BF | |
| IC502 | 8-759-200-78 | IC TC4030BF | |
| IC600 | 8-752-010-20 | IC CX20102 | |
| IC601 | 8-752-321-97 | IC CXD1066Q | |
| IC602 | 8-759-911-18 | IC CX23011 | |
| IC603 | 8-759-927-98 | IC MB8464-15L PF | |
| IC604 | 8-759-911-19 | IC CX23012 | |
| IC605 | 8-752-010-30 | IC CX20103 | |
| IC606 | 8-759-915-30 | IC CX23078 | |
| IC701 | 8-759-928-56 | IC CXA1042M | |
| IC703 | 8-759-193-24 | IC UPC324G2 | |
| JACK | | | |
| J101 | 1-507-678-00 | JACK | |
| JUMPER REED | | | |
| JR001 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| JR002 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |

| Ref.No | Part No. | Description | Remark |
|------------|--------------|-----------------------|------------|
| JR003 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| IC LINK | | | |
| PS003 | 1-532-685-00 | LINK, IC (ICP-N20) | |
| PS004 | 1-532-637-00 | LINK, IC (ICP-N25) | |
| PS201 | 1-532-685-00 | LINK, IC (ICP-N20) | |
| TRANSISTOR | | | |
| Q010 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q011 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q012 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q013 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q014 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q015 | 8-729-901-06 | TRANSISTOR DTA144EK | |
| Q020 | 8-729-901-05 | TRANSISTOR DTA124EK | |
| Q021 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q022 | 8-729-901-05 | TRANSISTOR DTA124EK | |
| Q023 | 8-729-199-92 | TRANSISTOR 2S0999 | |
| Q054 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q055 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q060 | 8-729-901-06 | TRANSISTOR DTA144EK | |
| Q085 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q086 | 8-729-100-76 | TRANSISTOR 2SA812 | |
| Q090 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q091 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q098 | 8-729-900-89 | TRANSISTOR DTC144ES | |
| Q099 | 8-729-900-61 | TRANSISTOR DTA144ES | |
| Q120 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q121 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q122 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q123 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q201 | 8-729-901-04 | TRANSISTOR DTA114EK | |
| Q202 | 8-729-900-53 | TRANSISTOR DTC114EK | |
| Q203 | 8-729-201-78 | TRANSISTOR 2SD1406 | |
| Q204 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| Q205 | 8-729-100-66 | TRANSISTOR 2SC1623 | |
| Q206 | 8-729-804-67 | TRANSISTOR 2SB1133-R | |
| Q207 | 8-729-901-06 | TRANSISTOR DTA144EK | |
| Q208 | 8-729-100-76 | TRANSISTOR 2SA812 | |
| Q209 | 8-729-201-78 | TRANSISTOR 2SD1406 | |
| Q210 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q211 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q212 | 8-729-105-29 | TRANSISTOR 2SA1385 | |
| Q213 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| Q214 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q215 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q216 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q217 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q218 | 8-729-113-33 | TRANSISTOR 2SB733-4 | |
| Q219 | 8-729-113-33 | TRANSISTOR 2SB733-4 | |
| Q220 | 8-729-100-76 | TRANSISTOR 2SA812 | |
| Q221 | 8-729-100-76 | TRANSISTOR 2SA812 | |
| Q222 | 8-729-177-33 | TRANSISTOR 2SD773-4 | |

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Ref.No | Part No. | Description | Remark |
|--------|--------------|-----------------------|----------|--------------|-----------------------|---------|
| Q223 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | Q708 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| Q224 | 8-729-177-33 | TRANSISTOR 2SD773-4 | Q709 | 8-729-100-76 | TRANSISTOR 2SA812 | |
| Q225 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | Q710 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| Q226 | 8-729-901-01 | TRANSISTOR DTC144EK | Q711 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| Q227 | 8-729-901-06 | TRANSISTOR DTA144EK | Q712 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q228 | 8-729-901-01 | TRANSISTOR DTC144EK | Q713 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| Q229 | 8-729-901-06 | TRANSISTOR DTA144EK | Q714 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q230 | 8-729-901-01 | TRANSISTOR DTC144EK | Q715 | 8-729-100-76 | TRANSISTOR 2SA812 | |
| Q232 | 8-729-901-06 | TRANSISTOR DTA144EK | Q716 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| Q233 | 8-729-901-01 | TRANSISTOR DTC144EK | Q717 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q235 | 8-729-901-01 | TRANSISTOR DTC144EK | Q790 | 8-729-900-65 | TRANSISTOR DTA144ES | |
| Q237 | 8-729-901-06 | TRANSISTOR DTA144EK | RESISTOR | | | |
| Q238 | 8-729-901-01 | TRANSISTOR DTC144EK | R001 | 1-216-073-00 | METAL CHIP | 1/10W |
| Q240 | 8-729-901-01 | TRANSISTOR DTC144EK | R002 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q242 | 8-729-901-01 | TRANSISTOR DTC144EK | R003 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q245 | 8-729-901-06 | TRANSISTOR DTA144EK | R004 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q246 | 8-729-901-01 | TRANSISTOR DTC144EK | R005 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q248 | 8-729-901-01 | TRANSISTOR DTC144EK | R006 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q249 | 8-729-901-06 | TRANSISTOR DTA144EK | R007 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q250 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | R008 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q251 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | R010 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q252 | 8-729-100-76 | TRANSISTOR 2SA812 | R011 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q253 | 8-729-100-76 | TRANSISTOR 2SA812 | R012 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q254 | 8-729-901-01 | TRANSISTOR DTC144EK | R013 | 1-216-081-00 | METAL CHIP | 22K 5% |
| Q256 | 8-729-901-01 | TRANSISTOR DTC144EK | R014 | 1-216-061-00 | METAL CHIP | 3.3K 5% |
| Q260 | 8-729-199-92 | TRANSISTOR 2SD999 | R015 | 1-216-081-00 | METAL CHIP | 22K 5% |
| Q261 | 8-729-199-92 | TRANSISTOR 2SD999 | R016 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q262 | 8-729-199-92 | TRANSISTOR 2SD999 | R018 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q263 | 8-729-901-06 | TRANSISTOR DTA144EK | R019 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q264 | 8-729-901-04 | TRANSISTOR DTA114EK | R020 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q280 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | R021 | 1-216-295-00 | METAL CHIP | 0 5% |
| Q281 | 8-729-901-01 | TRANSISTOR DTC144EK | R022 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q282 | 8-729-901-01 | TRANSISTOR DTC144EK | R023 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q390 | 8-729-901-01 | TRANSISTOR DTC144EK | R024 | 1-216-041-00 | METAL CHIP | 470 5% |
| Q401 | 8-729-901-01 | TRANSISTOR DTC144EK | R025 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q470 | 8-729-100-76 | TRANSISTOR 2SA812 | R026 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q471 | 8-729-901-01 | TRANSISTOR DTC144EK | R027 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q472 | 8-729-901-01 | TRANSISTOR DTC144EK | R028 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q480 | 8-729-900-89 | TRANSISTOR DTC144ES | R029 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q481 | 8-729-900-89 | TRANSISTOR DTC144ES | R030 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q482 | 8-729-900-89 | TRANSISTOR DTC144ES | R031 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q485 | 8-729-900-61 | TRANSISTOR DTA144ES | R032 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q500 | 8-729-901-01 | TRANSISTOR DTC144EK | R033 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q501 | 8-729-901-01 | TRANSISTOR DTC144EK | R034 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q502 | 8-729-901-01 | TRANSISTOR DTC144EK | R039 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q601 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | R040 | 1-216-295-00 | METAL CHIP | 0 5% |
| Q602 | 8-729-901-01 | TRANSISTOR DTC144EK | R041 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q604 | 8-729-901-06 | TRANSISTOR DTA144EK | R042 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q605 | 8-729-901-01 | TRANSISTOR DTC144EK | R050 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q606 | 8-729-901-01 | TRANSISTOR DTC144EK | R051 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q701 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | R052 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q702 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | R058 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q703 | 8-729-901-01 | TRANSISTOR DTC144EK | | | | |
| Q704 | 8-729-100-76 | TRANSISTOR 2SA812 | | | | |
| Q705 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | | | |
| Q706 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | | | |
| Q707 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | | | |

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|--------|--------------|-------------|------------------|--------|--------------|-------------|------------------|
| R080 | 1-216-001-00 | METAL CHIP | 10 5% 1/10W | R230 | 1-216-101-00 | METAL CHIP | 150K 5% 1/10W |
| R084 | 1-216-041-00 | METAL CHIP | 470 5% 1/10W | R231 | 1-216-049-00 | METAL CHIP | 1K 5% 1/10W |
| R086 | 1-216-097-00 | METAL CHIP | 100K 5% 1/10W | R232 | 1-216-304-11 | METAL CHIP | 3.3 5% 1/10W |
| R087 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R233 | 1-216-304-11 | METAL CHIP | 3.3 5% 1/10W |
| R088 | 1-216-089-00 | METAL CHIP | 47K 5% 1/10W | R234 | 1-216-304-11 | METAL CHIP | 3.3 5% 1/10W |
| R089 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R235 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| R090 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R236 | 1-216-097-00 | METAL CHIP | 100K 5% 1/10W |
| R097 | 1-216-113-00 | METAL CHIP | 470K 5% 1/10W | R237 | 1-216-068-00 | METAL CHIP | 6.2K 5% 1/10W |
| R098 | 1-216-113-00 | METAL CHIP | 470K 5% 1/10W | R238 | 1-216-069-00 | METAL CHIP | 6.8K 5% 1/10W |
| R099 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R240 | 1-216-683-11 | METAL CHIP | 22K 0.50% 1/10W |
| R100 | 1-216-001-00 | METAL CHIP | 10 5% 1/10W | R241 | 1-216-667-11 | METAL CHIP | 4.7K 0.50% 1/10W |
| R151 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R242 | 1-216-683-11 | METAL CHIP | 22K 0.50% 1/10W |
| R152 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R244 | 1-216-681-11 | METAL CHIP | 18K 0.50% 1/10W |
| R153 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R245 | 1-216-121-00 | METAL CHIP | 1M 5% 1/10W |
| R154 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R246 | 1-216-681-11 | METAL CHIP | 18K 0.50% 1/10W |
| R155 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R247 | 1-216-080-00 | METAL CHIP | 20K 5% 1/10W |
| R156 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R248 | 1-216-080-00 | METAL CHIP | 20K 5% 1/10W |
| R157 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R249 | 1-216-080-00 | METAL CHIP | 20K 5% 1/10W |
| R158 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R250 | 1-216-080-00 | METAL CHIP | 20K 5% 1/10W |
| R160 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R251 | 1-216-080-00 | METAL CHIP | 20K 5% 1/10W |
| R161 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R252 | 1-216-080-00 | METAL CHIP | 20K 5% 1/10W |
| R162 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R253 | 1-216-080-00 | METAL CHIP | 20K 5% 1/10W |
| R163 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R254 | 1-216-080-00 | METAL CHIP | 20K 5% 1/10W |
| R170 | 1-216-061-00 | METAL CHIP | 3.3K 5% 1/10W | R255 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R171 | 1-216-097-00 | METAL CHIP | 100K 5% 1/10W | R256 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R200 | 1-249-220-00 | CARBON | 1.2 5% 1/4W | R257 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R202 | 1-216-097-00 | METAL CHIP | 100K 5% 1/10W | R258 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R203 | 1-216-055-00 | METAL CHIP | 1.8K 5% 1/10W | R259 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R204 | 1-216-055-00 | METAL CHIP | 4.7K 5% 1/10W | R260 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R205 | 1-216-049-00 | METAL CHIP | 1K 5% 1/10W | R261 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R206 | 1-216-065-00 | METAL CHIP | 4.7K 5% 1/10W | R262 | 1-216-080-00 | METAL CHIP | 20K 5% 1/10W |
| R207 | 1-216-049-00 | METAL CHIP | 1K 5% 1/10W | R263 | 1-216-097-00 | METAL CHIP | 10K 5% 1/10W |
| R208 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R264 | 1-216-033-00 | METAL CHIP | 220 5% 1/10W |
| R209 | 1-216-071-00 | METAL CHIP | 8.2K 5% 1/10W | R265 | 1-216-057-00 | METAL CHIP | 2.2K 5% 1/10W |
| R210 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R266 | 1-216-150-00 | METAL CHIP | 10 5% 1/8W |
| R211 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R267 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R212 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R268 | 1-216-150-00 | METAL CHIP | 10 5% 1/8W |
| R214 | 1-216-105-00 | METAL CHIP | 220K 5% 1/10W | R269 | 1-216-055-00 | METAL CHIP | 1.8K 5% 1/10W |
| R215 | 1-216-113-00 | METAL CHIP | 470K 5% 1/10W | R270 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R216 | 1-216-663-11 | METAL CHIP | 3.3K 0.50% 1/16W | R271 | 1-216-025-00 | METAL CHIP | 100 5% 1/10W |
| R217 | 1-216-669-11 | METAL CHIP | 5.6K 0.50% 1/16W | R272 | 1-216-041-00 | METAL CHIP | 470 5% 1/10W |
| R218 | 1-216-059-00 | METAL CHIP | 2.7K 5% 1/10W | R273 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R219 | 1-216-113-00 | METAL CHIP | 470K 5% 1/10W | R274 | 1-216-085-00 | METAL CHIP | 33K 5% 1/10W |
| R220 | 1-216-025-00 | METAL CHIP | 100 5% 1/10W | R275 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R221 | 1-216-053-00 | METAL CHIP | 1.5K 5% 1/10W | R276 | 1-216-085-00 | METAL CHIP | 33K 5% 1/10W |
| R222 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R277 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R223 | 1-216-025-00 | METAL CHIP | 100 5% 1/10W | R278 | 1-216-071-00 | METAL CHIP | 8.2K 5% 1/10W |
| R224 | 1-216-081-00 | METAL CHIP | 22K 5% 1/10W | R279 | 1-216-061-00 | METAL CHIP | 3.3K 5% 1/10W |
| R225 | 1-216-085-00 | METAL CHIP | 33K 5% 1/10W | R280 | 1-216-061-00 | METAL CHIP | 3.3K 5% 1/10W |
| R226 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | R281 | 1-216-061-00 | METAL CHIP | 3.3K 5% 1/10W |
| R227 | 1-216-081-00 | METAL CHIP | 22K 5% 1/10W | R282 | 1-216-061-00 | METAL CHIP | 3.3K 5% 1/10W |
| R228 | 1-216-033-00 | METAL CHIP | 220 5% 1/10W | R283 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R229 | 1-216-081-00 | METAL CHIP | 22K 5% 1/10W | R284 | 1-216-061-00 | METAL CHIP | 3.3K 5% 1/10W |

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|--------|--------------|-------------|------------|--------|--------------|-------------|------------|
| R285 | 1-216-061-00 | METAL CHIP | 3.3K 5% | R351 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R286 | 1-216-073-00 | METAL CHIP | 10K 5% | R352 | 1-216-685-11 | METAL CHIP | 27K 0.50% |
| R287 | 1-216-049-00 | METAL CHIP | 1K 5% | R353 | 1-216-663-11 | METAL CHIP | 3.3K 0.50% |
| R288 | 1-216-049-00 | METAL CHIP | 1K 5% | R354 | 1-216-689-11 | METAL CHIP | 39K 0.50% |
| R290 | 1-216-073-00 | METAL CHIP | 10K 5% | R356 | 1-216-693-11 | METAL CHIP | 56K 0.50% |
| R291 | 1-216-073-00 | METAL CHIP | 10K 5% | R357 | 1-216-691-11 | METAL CHIP | 47K 0.50% |
| R294 | 1-216-073-00 | METAL CHIP | 10K 5% | R358 | 1-216-663-11 | METAL CHIP | 3.3K 0.50% |
| R295 | 1-216-103-00 | METAL CHIP | 180K 5% | R359 | 1-216-685-11 | METAL CHIP | 27K 0.50% |
| R296 | 1-216-121-00 | METAL CHIP | 1M 5% | R360 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R297 | 1-216-097-00 | METAL CHIP | 100K 5% | R361 | 1-216-085-00 | METAL CHIP | 33K 5% |
| R298 | 1-216-049-00 | METAL CHIP | 1K 5% | R362 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R299 | 1-216-073-00 | METAL CHIP | 10K 5% | R363 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R300 | 1-216-073-00 | METAL CHIP | 10K 5% | R364 | 1-216-085-00 | METAL CHIP | 33K 5% |
| R301 | 1-216-073-00 | METAL CHIP | 10K 5% | R365 | 1-216-097-00 | METAL CHIP | 100K 5% |
| R303 | 1-216-073-00 | METAL CHIP | 10K 5% | R366 | 1-216-097-00 | METAL CHIP | 100K 5% |
| R305 | 1-216-085-00 | METAL CHIP | 33K 5% | R367 | 1-216-089-00 | METAL CHIP | 47K 5% |
| R306 | 1-216-077-00 | METAL CHIP | 15K 5% | R370 | 1-216-097-00 | METAL CHIP | 100K 5% |
| R307 | 1-216-043-00 | METAL CHIP | 560K 5% | R371 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R308 | 1-216-049-00 | METAL CHIP | 1K 5% | R372 | 1-216-681-11 | METAL CHIP | 18K 0.50% |
| R309 | 1-216-073-00 | METAL CHIP | 10K 5% | R373 | 1-216-075-00 | METAL CHIP | 12K 5% |
| R310 | 1-216-049-00 | METAL CHIP | 1K 5% | R376 | 1-216-107-00 | METAL CHIP | 270K 5% |
| R311 | 1-216-113-00 | METAL CHIP | 470K 5% | R377 | 1-216-107-00 | METAL CHIP | 270K 5% |
| R312 | 1-216-115-00 | METAL CHIP | 560K 5% | R380 | 1-216-115-00 | METAL CHIP | 560K 5% |
| R313 | 1-216-073-00 | METAL CHIP | 10K 5% | R381 | 1-216-115-00 | METAL CHIP | 560K 5% |
| R314 | 1-216-073-00 | METAL CHIP | 10K 5% | R388 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R315 | 1-216-073-00 | METAL CHIP | 10K 5% | R390 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R316 | 1-216-073-00 | METAL CHIP | 10K 5% | R391 | 1-216-097-00 | METAL CHIP | 100K 5% |
| R317 | 1-216-073-00 | METAL CHIP | 10K 5% | R392 | 1-216-065-00 | METAL CHIP | 4.7K 5% |
| R318 | 1-216-073-00 | METAL CHIP | 10K 5% | R394 | 1-216-035-00 | METAL CHIP | 270 5% |
| R319 | 1-216-085-00 | METAL CHIP | 33K 5% | R395 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R320 | 1-216-685-11 | METAL CHIP | 27K 0.50% | R396 | 1-216-693-11 | METAL CHIP | 56K 0.50% |
| R321 | 1-216-073-00 | METAL CHIP | 10K 5% | R398 | 1-216-111-00 | METAL CHIP | 390K 5% |
| R322 | 1-216-089-00 | METAL CHIP | 47K 5% | R399 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R323 | 1-216-073-00 | METAL CHIP | 10K 5% | R401 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R324 | 1-216-099-00 | METAL CHIP | 120K 5% | R408 | 1-216-115-00 | METAL CHIP | 560K 5% |
| R326 | 1-216-109-00 | METAL CHIP | 330K 5% | R470 | 1-216-109-00 | METAL CHIP | 330K 5% |
| R327 | 1-216-061-00 | METAL CHIP | 3.3K 5% | R471 | 1-216-109-00 | METAL CHIP | 330K 5% |
| R328 | 1-216-091-00 | METAL CHIP | 56K 5% | R472 | 1-216-109-00 | METAL CHIP | 330K 5% |
| R329 | 1-216-117-00 | METAL CHIP | 680K 5% | R473 | 1-216-097-00 | METAL CHIP | 100K 5% |
| R330 | 1-216-117-00 | METAL CHIP | 680K 5% | R474 | 1-216-049-00 | METAL CHIP | 1K 5% |
| R331 | 1-216-081-00 | METAL CHIP | 22K 5% | R475 | 1-216-103-00 | METAL CHIP | 180K 5% |
| R332 | 1-216-115-00 | METAL CHIP | 560K 5% | R480 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R333 | 1-216-073-00 | METAL CHIP | 10K 5% | R485 | 1-216-091-00 | METAL CHIP | 56K 5% |
| R334 | 1-216-115-00 | METAL CHIP | 560K 5% | R502 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R336 | 1-216-083-11 | METAL CHIP | 27K 5% | R504 | 1-216-061-00 | METAL CHIP | 3.3K 5% |
| R337 | 1-216-073-00 | METAL CHIP | 10K 5% | R505 | 1-216-061-00 | METAL CHIP | 3.3K 5% |
| R338 | 1-216-121-00 | METAL CHIP | 1M 5% | R506 | 1-216-061-00 | METAL CHIP | 3.3K 5% |
| R339 | 1-216-089-00 | METAL CHIP | 47K 5% | R508 | 1-216-085-00 | METAL CHIP | 33K 5% |
| R340 | 1-216-663-11 | METAL CHIP | 3.3K 0.50% | R509 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R341 | 1-216-667-11 | METAL CHIP | 4.7K 0.50% | R510 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R342 | 1-216-073-00 | METAL CHIP | 10K 5% | R511 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R343 | 1-216-073-00 | METAL CHIP | 10K 5% | R514 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R344 | 1-216-049-00 | METAL CHIP | 1K 5% | R515 | 1-216-073-00 | METAL CHIP | 10K 5% |
| | | | | R516 | 1-216-073-00 | METAL CHIP | 10K 5% |
| | | | | R517 | 1-216-049-00 | METAL CHIP | 1K 5% |

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|--------|--------------|-------------|-----------|--------|--------------|-------------|---------|
| R518 | 1-216-073-00 | METAL CHIP | 10K 5% | R709 | 1-216-097-00 | METAL CHIP | 100K 5% |
| R519 | 1-216-085-00 | METAL CHIP | 33K 5% | R715 | 1-216-049-00 | METAL CHIP | 1K 5% |
| R530 | 1-216-081-00 | METAL CHIP | 22K 5% | R716 | 1-216-065-00 | METAL CHIP | 4.7K 5% |
| R607 | 1-216-045-00 | METAL CHIP | 680 5% | R717 | 1-216-061-00 | METAL CHIP | 3.3K 5% |
| R608 | 1-216-097-00 | METAL CHIP | 100K 5% | R718 | 1-216-061-00 | METAL CHIP | 3.3K 5% |
| R609 | 1-216-049-00 | METAL CHIP | 1K 5% | R719 | 1-216-061-00 | METAL CHIP | 3.3K 5% |
| R610 | 1-216-049-00 | METAL CHIP | 1K 5% | R720 | 1-216-085-00 | METAL CHIP | 33K 5% |
| R611 | 1-216-001-00 | METAL CHIP | 10 5% | R721 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R612 | 1-216-053-00 | METAL CHIP | 1.5K 5% | R722 | 1-216-049-00 | METAL CHIP | 1K 5% |
| R613 | 1-216-041-00 | METAL CHIP | 470 5% | R723 | 1-216-079-00 | METAL CHIP | 18K 5% |
| R614 | 1-216-045-00 | METAL CHIP | 680 5% | R724 | 1-216-085-00 | METAL CHIP | 33K 5% |
| R615 | 1-216-051-00 | METAL CHIP | 1.2K 5% | R725 | 1-216-045-00 | METAL CHIP | 680 5% |
| R616 | 1-216-049-00 | METAL CHIP | 1K 5% | R726 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R617 | 1-216-073-00 | METAL CHIP | 10K 5% | R727 | 1-216-077-00 | METAL CHIP | 15K 5% |
| R618 | 1-216-071-00 | METAL CHIP | 8.2K 5% | R728 | 1-216-027-00 | METAL CHIP | 120 5% |
| R619 | 1-216-051-00 | METAL CHIP | 1.2K 5% | R729 | 1-216-035-00 | METAL CHIP | 270 5% |
| R620 | 1-216-645-11 | METAL CHIP | 560 0.50% | R730 | 1-216-039-00 | METAL CHIP | 390 5% |
| R621 | 1-216-073-00 | METAL CHIP | 10K 5% | R731 | 1-216-072-00 | METAL CHIP | 9.1K 5% |
| R622 | 1-216-077-00 | METAL CHIP | 15K 5% | R732 | 1-216-057-00 | METAL CHIP | 2.2K 5% |
| R623 | 1-216-077-00 | METAL CHIP | 15K 5% | R733 | 1-216-051-00 | METAL CHIP | 1.2K 5% |
| R624 | 1-216-049-00 | METAL CHIP | 1K 5% | R734 | 1-216-049-00 | METAL CHIP | 1K 5% |
| R625 | 1-216-033-00 | METAL CHIP | 220 5% | R735 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R626 | 1-216-061-00 | METAL CHIP | 3.3K 5% | R736 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R627 | 1-216-081-00 | METAL CHIP | 22K 5% | R737 | 1-216-049-00 | METAL CHIP | 1K 5% |
| R628 | 1-216-079-00 | METAL CHIP | 18K 5% | R738 | 1-216-061-00 | METAL CHIP | 3.3K 5% |
| R630 | 1-216-295-00 | METAL CHIP | 0 5% | R739 | 1-216-061-00 | METAL CHIP | 3.3K 5% |
| R632 | 1-216-085-00 | METAL CHIP | 33K 5% | R740 | 1-216-065-00 | METAL CHIP | 4.7K 5% |
| R633 | 1-216-085-00 | METAL CHIP | 33K 5% | R741 | 1-216-061-00 | METAL CHIP | 3.3K 5% |
| R634 | 1-216-085-00 | METAL CHIP | 33K 5% | R742 | 1-216-061-00 | METAL CHIP | 3.3K 5% |
| R635 | 1-216-029-00 | METAL CHIP | 150 5% | R743 | 1-216-065-00 | METAL CHIP | 4.7K 5% |
| R636 | 1-216-065-00 | METAL CHIP | 4.7K 5% | R744 | 1-216-079-00 | METAL CHIP | 18K 5% |
| R637 | 1-216-069-00 | METAL CHIP | 6.8K 5% | R745 | 1-216-088-00 | METAL CHIP | 43K 5% |
| R638 | 1-216-069-00 | METAL CHIP | 6.8K 5% | R746 | 1-216-059-00 | METAL CHIP | 2.7K 5% |
| R640 | 1-216-073-00 | METAL CHIP | 10K 5% | R747 | 1-216-057-00 | METAL CHIP | 2.2K 5% |
| R641 | 1-216-085-00 | METAL CHIP | 33K 5% | R748 | 1-216-067-00 | METAL CHIP | 5.6K 5% |
| R650 | 1-216-041-00 | METAL CHIP | 470 5% | R749 | 1-216-049-00 | METAL CHIP | 1K 5% |
| R652 | 1-216-109-00 | METAL CHIP | 330K 5% | R750 | 1-216-049-00 | METAL CHIP | 1K 5% |
| R653 | 1-216-109-00 | METAL CHIP | 330K 5% | R751 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R660 | 1-216-073-00 | METAL CHIP | 10K 5% | R752 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R661 | 1-216-073-00 | METAL CHIP | 10K 5% | R753 | 1-216-065-00 | METAL CHIP | 4.7K 5% |
| R662 | 1-216-033-00 | METAL CHIP | 220 5% | R754 | 1-216-057-00 | METAL CHIP | 2.2K 5% |
| R663 | 1-216-033-00 | METAL CHIP | 220 5% | R755 | 1-216-057-00 | METAL CHIP | 2.2K 5% |
| R664 | 1-216-073-00 | METAL CHIP | 10K 5% | R756 | 1-216-065-00 | METAL CHIP | 4.7K 5% |
| R665 | 1-216-097-00 | METAL CHIP | 100K 5% | R757 | 1-216-057-00 | METAL CHIP | 2.2K 5% |
| R699 | 1-216-049-00 | METAL CHIP | 1K 5% | R758 | 1-216-057-00 | METAL CHIP | 2.2K 5% |
| R701 | 1-216-105-00 | METAL CHIP | 220K 5% | R759 | 1-216-070-00 | METAL CHIP | 7.5K 5% |
| R702 | 1-216-081-00 | METAL CHIP | 22K 5% | R760 | 1-216-069-00 | METAL CHIP | 6.8K 5% |
| R703 | 1-216-089-00 | METAL CHIP | 47K 5% | R761 | 1-216-085-00 | METAL CHIP | 33K 5% |
| R704 | 1-216-097-00 | METAL CHIP | 100K 5% | R762 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R705 | 1-216-085-00 | METAL CHIP | 33K 5% | R764 | 1-216-073-00 | METAL CHIP | 10K 5% |
| R706 | 1-216-117-00 | METAL CHIP | 680K 5% | R790 | 1-249-422-11 | CARBON | 2.7K 5% |
| R707 | 1-216-091-00 | METAL CHIP | 56K 5% | | | | 1/4W |
| R708 | 1-216-073-00 | METAL CHIP | 10K 5% | | | | |

When indicating parts by reference number, please include the board name.

SP-2

RB-2

KM-1

AU-22

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|-------------------|--------------|----------------------------------------|--------|---------------|--------------|--------------|--------------|
| VARIABLE RESISTOR | | | | RESISTOR | | | |
| RV201 | 1-228-998-00 | RES, ADJ, METAL GLAZE 220K | | R450 | 1-249-429-11 | CARBON | 10K 5% 1/4W |
| RV202 | 1-228-998-00 | RES, ADJ, METAL GLAZE 220K | | R451 | 1-249-429-11 | CARBON | 10K 5% 1/4W |
| RV203 | 1-228-993-00 | RES, ADJ, CARBON 4.7K | | R452 | 1-249-440-11 | CARBON | 82K 5% 1/4W |
| RV204 | 1-228-993-00 | RES, ADJ, CARBON 4.7K | | R453 | 1-215-468-00 | CARBON | 91K 5% 1/4W |
| RV206 | 1-228-995-00 | RES, ADJ, METAL GLAZE 22K | | R454 | 1-249-433-11 | CARBON | 22K 5% 1/4W |
| RV208 | 1-228-995-00 | RES, ADJ, METAL GLAZE 22K | | R455 | 1-247-887-00 | CARBON | 220K 5% 1/4W |
| RV209 | 1-228-989-00 | RES, ADJ, CARBON 470 | | R456 | 1-249-429-11 | CARBON | 10K 5% 1/4W |
| RV210 | 1-228-991-00 | RES, ADJ, METAL GLAZE 2.2K | | R457 | 1-249-417-11 | CARBON | 1K 5% 1/4W |
| RV601 | 1-228-991-00 | RES, ADJ, CARBON 2.2K | | ***** | | | |
| RV602 | 1-228-991-00 | RES, ADJ, CARBON 2.2K | | *1-623-747-11 | KM-1 BOARD | | |
| RV603 | 1-228-997-00 | RES, ADJ, CARBON 100K | | | ***** | | |
| RV604 | 1-228-994-00 | RES, ADJ, CARBON 10K | | ***** | | | |
| RV701 | 1-228-996-00 | RES, ADJ, CARBON 47K | | ***** | | | |
| CRYSTAL | | | | DIODE | | | |
| X001 | 1-567-346-11 | OSCILLATOR, CERAMIC (5MHZ) | | D490 | 8-719-911-19 | DIODE 1SS119 | |
| X002 | 1-567-121-00 | VIBRATOR, CRYSTAL (4.19MHZ) | | D491 | 8-719-911-19 | DIODE 1SS119 | |
| X080 | 1-567-192-11 | OSCILLATOR, CERAMIC (4MHZ) | | D492 | 8-719-911-19 | DIODE 1SS119 | |
| X201 | 1-567-699-21 | VIBRATOR, CRYSTAL (5.94MHZ) | | D493 | 8-719-911-19 | DIODE 1SS119 | |
| X600 | 1-567-419-11 | VIBRATOR, LITHIUM TANTALATE (11.58MHZ) | | ***** | | | |
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| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|--------|---------------|----------------------|--------|--------|--------------|-----------------|--------|
| C226 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V | D201 | 8-719-110-47 | DIODE R018ESB | |
| C227 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V | D203 | 8-719-110-47 | DIODE R018ESB | |
| C305 | 1-124-903-00 | ELECT 1MF | 20% | D701 | 8-719-109-58 | DIODE R02.7ES-B | |
| C306 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V | | | | |
| C308 | 1-130-495-00 | MYLAR 0.1MF | 5% | | | | |
| C309 | 1-163-101-00 | CERAMIC CHIP 22PF | 50V | | | | |
| C310 | 1-163-117-00 | CERAMIC CHIP 100PF | 50V | | | | |
| C311 | 1-130-472-00 | MYLAR 0.0012MF | 5% | | | | |
| C312 | 1-163-117-00 | CERAMIC CHIP 100PF | 50V | | | | |
| C313 | 1-130-474-00 | MYLAR 0.0018MF | 5% | | | | |
| C321 | 1-130-489-00 | MYLAR 0.033MF | 5% | | | | |
| C324 | 1-124-261-00 | ELECT 10MF | 20% | | | | |
| C331 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 10% | | | | |
| C332 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 10% | | | | |
| C405 | 1-124-903-00 | ELECT 1MF | 20% | | | | |
| C406 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V | | | | |
| C408 | 1-130-495-00 | MYLAR 0.1MF | 5% | | | | |
| C409 | 1-163-101-00 | CERAMIC CHIP 22PF | 50V | | | | |
| C410 | 1-163-117-00 | CERAMIC CHIP 100PF | 50V | | | | |
| C411 | 1-130-472-00 | MYLAR 0.0012MF | 5% | | | | |
| C412 | 1-163-117-00 | CERAMIC CHIP 100PF | 50V | | | | |
| C413 | 1-130-474-00 | MYLAR 0.0018MF | 5% | | | | |
| C414 | 1-130-489-00 | MYLAR 0.003MF | 5% | | | | |
| C421 | 1-124-216-00 | ELECT 10MF | 20% | | | | |
| C431 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 10% | | | | |
| C432 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 25V | | | | |
| C502 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V | | | | |
| C507 | 1-124-903-00 | ELECT 1MF | 20% | | | | |
| C801 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V | | | | |
| C802 | 1-163-073-00 | CERAMIC CHIP 0.022MF | 50V | | | | |
| C805 | 1-124-903-00 | ELECT 1MF | 20% | | | | |
| C806 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V | | | | |
| C821 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V | | | | |
| C822 | 1-163-073-00 | CERAMIC CHIP 0.022MF | 50V | | | | |
| C825 | 1-124-255-91 | ELECT 1MF | 50V | | | | |
| C826 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V | | | | |
| C840 | 1-124-892-11 | ELECT 47MF | 10V | | | | |
| C841 | 1-163-073-00 | CERAMIC CHIP 0.022MF | 50V | | | | |
| | | CONNECTOR | | | | | |
| CN201 | *1-564-003-00 | PIN, CONNECTOR 4P | | | | | |
| CN202 | *1-564-003-00 | PIN, CONNECTOR 4P | | | | | |
| CN204 | *1-564-005-00 | PIN, CONNECTOR 6P | | | | | |
| CN205 | *1-564-003-00 | PIN, CONNECTOR 4P | | | | | |
| CN207 | *1-564-001-11 | PIN, CONNECTOR 2P | | | | | |
| CN208 | *1-564-004-00 | PIN, CONNECTOR 5P | | | | | |
| CN501 | *1-564-004-00 | PIN, CONNECTOR 5P | | | | | |
| CN801 | *1-564-002-00 | PIN, CONNECTOR 3P | | | | | |
| CN901 | *1-564-001-11 | PIN, CONNECTOR 2P | | | | | |
| | | JACK | | | | | |
| CNJ251 | 1-507-500-41 | JACK, PIN 2P | | | | | |
| CNJ253 | 1-507-500-41 | JACK, PIN 2P | | | | | |

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
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| R002 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R065 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R003 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R066 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R004 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R067 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R005 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R068 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R006 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R069 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R007 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R070 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R008 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R072 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R009 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R073 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R010 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R074 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R011 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R075 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R012 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R076 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R013 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R077 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R014 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R078 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R015 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R079 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R016 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R080 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R017 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R081 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R018 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R082 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R019 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R083 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R020 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R084 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R026 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R085 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R027 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R086 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R028 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R087 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R029 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R088 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R030 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R089 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R031 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R090 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R032 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R091 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R033 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R092 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W |
| R034 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R102 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R035 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R104 | 1-216-081-00 | METAL CHIP | 22K 5% 1/10W |
| R036 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R107 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R037 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R110 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R038 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R202 | 1-249-393-11 | CARBON | 10 5% 1/4W |
| R039 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R203 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| R040 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R205 | 1-216-097-00 | METAL CHIP | 100K 5% 1/10W |
| R041 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R206 | 1-216-097-00 | METAL CHIP | 100K 5% 1/10W |
| R042 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R207 | 1-216-097-00 | METAL CHIP | 100K 5% 1/10W |
| R043 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R210 | 1-216-085-00 | METAL CHIP | 33K 5% 1/10W |
| R044 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R211 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R045 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R216 | 1-216-097-00 | METAL CHIP | 100K 5% 1/10W |
| R046 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R217 | 1-216-097-00 | METAL CHIP | 100K 5% 1/10W |
| R047 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R218 | 1-216-097-00 | METAL CHIP | 100K 5% 1/10W |
| R053 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R220 | 1-216-081-00 | METAL CHIP | 22K 5% 1/10W |
| R054 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | R221 | 1-216-089-00 | METAL CHIP | 47K 5% 1/10W |
| R055 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | R230 | 1-216-061-00 | METAL CHIP | 3.3K 5% 1/10W |
| R056 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | R233 | 1-216-069-00 | METAL CHIP | 6.8K 5% 1/10W |
| R057 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | R236 | 1-216-071-00 | METAL CHIP | 8.2K 5% 1/10W |
| R058 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | R237 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R059 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | R238 | 1-216-061-00 | METAL CHIP | 3.3K 5% 1/10W |
| R060 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | R240 | 1-216-061-00 | METAL CHIP | 3.3K 5% 1/10W |
| R061 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | R241 | 1-216-074-00 | METAL CHIP | 11K 5% 1/10W |
| R062 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | R242 | 1-216-061-00 | METAL CHIP | 3.3K 5% 1/10W |
| R063 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | R244 | 1-216-081-00 | METAL CHIP | 22K 5% 1/10W |
| R064 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | R305 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |

When indicating parts by reference number, please include the board name.

AU-22

AF-20

| Ref.No | Part No. | Description | Ref.No | Part No. | Description | Ref.No | Part No. | Description | Remark |
|--------|--------------|-------------|--------|--------------|-------------|--------|--------------|-------------|--------|
| R307 | 1-216-079-00 | METAL CHIP | R445 | 1-249-427-11 | CARBON | R445 | 1-249-427-11 | CARBON | 1/10W |
| R309 | 1-216-093-00 | METAL CHIP | R446 | 1-216-025-00 | METAL CHIP | R446 | 1-216-025-00 | METAL CHIP | 5% |
| R310 | 1-216-099-00 | METAL CHIP | R447 | 1-247-869-00 | CARBON | R447 | 1-247-869-00 | CARBON | 1/10W |
| R314 | 1-247-837-00 | CARBON | R449 | 1-216-057-00 | METAL CHIP | R449 | 1-216-057-00 | METAL CHIP | 5% |
| R315 | 1-247-841-00 | CARBON | R450 | 1-249-425-11 | CARBON | R450 | 1-249-425-11 | CARBON | 1/4W |
| | | | | | | | | | 5% |
| R317 | 1-215-477-00 | CARBON | R451 | 1-249-423-11 | CARBON | R451 | 1-249-423-11 | CARBON | 1/4W |
| R319 | 1-249-433-11 | CARBON | R460 | 1-215-418-00 | CARBON | R460 | 1-215-418-00 | CARBON | 5% |
| R320 | 1-215-473-00 | CARBON | R462 | 1-247-858-00 | CARBON | R462 | 1-247-858-00 | CARBON | 1/4W |
| R321 | 1-216-001-00 | METAL CHIP | R463 | 1-247-861-00 | CARBON | R463 | 1-247-861-00 | CARBON | 5% |
| R322 | 1-216-101-00 | METAL CHIP | R470 | 1-216-065-00 | METAL CHIP | R470 | 1-216-065-00 | METAL CHIP | 1/10W |
| | | | | | | | | | 5% |
| R327 | 1-216-059-00 | METAL CHIP | R501 | 1-216-079-00 | METAL CHIP | R501 | 1-216-079-00 | METAL CHIP | 1/10W |
| R330 | 1-216-053-00 | METAL CHIP | R502 | 1-216-065-00 | METAL CHIP | R502 | 1-216-065-00 | METAL CHIP | 5% |
| R331 | 1-216-025-00 | METAL CHIP | R503 | 1-216-063-00 | METAL CHIP | R503 | 1-216-063-00 | METAL CHIP | 1/10W |
| R332 | 1-216-095-00 | METAL CHIP | R505 | 1-216-063-00 | METAL CHIP | R505 | 1-216-063-00 | METAL CHIP | 5% |
| R333 | 1-247-854-00 | CARBON | R506 | 1-216-049-00 | METAL CHIP | R506 | 1-216-049-00 | METAL CHIP | 1/10W |
| | | | | | | | | | 5% |
| R335 | 1-249-414-11 | CARBON | R562 | 1-216-069-00 | METAL CHIP | R562 | 1-216-069-00 | METAL CHIP | 1/4W |
| R336 | 1-247-860-00 | CARBON | R563 | 1-216-067-00 | METAL CHIP | R563 | 1-216-067-00 | METAL CHIP | 5% |
| R337 | 1-216-065-00 | METAL CHIP | R564 | 1-216-089-00 | METAL CHIP | R564 | 1-216-089-00 | METAL CHIP | 1/10W |
| R338 | 1-249-423-11 | CARBON | R565 | 1-216-069-00 | METAL CHIP | R565 | 1-216-069-00 | METAL CHIP | 5% |
| R339 | 1-249-423-11 | CARBON | R566 | 1-216-073-00 | METAL CHIP | R566 | 1-216-073-00 | METAL CHIP | 1/4W |
| | | | | | | | | | 5% |
| R340 | 1-247-844-00 | CARBON | R570 | 1-216-047-00 | METAL CHIP | R570 | 1-216-047-00 | METAL CHIP | 1/4W |
| R345 | 1-249-427-11 | CARBON | R701 | 1-216-295-00 | METAL CHIP | R701 | 1-216-295-00 | METAL CHIP | 5% |
| R346 | 1-216-025-00 | METAL CHIP | R801 | 1-216-057-00 | METAL CHIP | R801 | 1-216-057-00 | METAL CHIP | 1/10W |
| R347 | 1-216-087-00 | METAL CHIP | R802 | 1-216-063-00 | METAL CHIP | R802 | 1-216-063-00 | METAL CHIP | 5% |
| R349 | 1-216-057-00 | METAL CHIP | R803 | 1-216-077-00 | METAL CHIP | R803 | 1-216-077-00 | METAL CHIP | 1/10W |
| | | | | | | | | | 5% |
| R350 | 1-249-425-11 | CARBON | R804 | 1-216-073-00 | METAL CHIP | R804 | 1-216-073-00 | METAL CHIP | 1/4W |
| R351 | 1-249-423-11 | CARBON | R805 | 1-216-097-00 | METAL CHIP | R805 | 1-216-097-00 | METAL CHIP | 5% |
| R360 | 1-215-418-00 | CARBON | R806 | 1-216-063-00 | METAL CHIP | R806 | 1-216-063-00 | METAL CHIP | 1/10W |
| R362 | 1-247-858-00 | CARBON | R807 | 1-216-074-00 | METAL CHIP | R807 | 1-216-074-00 | METAL CHIP | 5% |
| R363 | 1-247-861-00 | CARBON | R808 | 1-216-049-00 | METAL CHIP | R808 | 1-216-049-00 | METAL CHIP | 1/4W |
| | | | | | | | | | 5% |
| R370 | 1-216-065-00 | METAL CHIP | R809 | 1-216-041-00 | METAL CHIP | R809 | 1-216-041-00 | METAL CHIP | 1/10W |
| R407 | 1-216-079-00 | METAL CHIP | R821 | 1-216-057-00 | METAL CHIP | R821 | 1-216-057-00 | METAL CHIP | 5% |
| R409 | 1-216-093-00 | METAL CHIP | R822 | 1-216-063-00 | METAL CHIP | R822 | 1-216-063-00 | METAL CHIP | 1/10W |
| R410 | 1-216-099-00 | METAL CHIP | R823 | 1-216-077-00 | METAL CHIP | R823 | 1-216-077-00 | METAL CHIP | 5% |
| R414 | 1-249-420-11 | CARBON | R824 | 1-216-073-00 | METAL CHIP | R824 | 1-216-073-00 | METAL CHIP | 1/10W |
| | | | | | | | | | 5% |
| R415 | 1-247-841-00 | CARBON | R825 | 1-216-097-00 | METAL CHIP | R825 | 1-216-097-00 | METAL CHIP | 1/4W |
| R416 | 1-216-295-00 | METAL CHIP | R826 | 1-216-063-00 | METAL CHIP | R826 | 1-216-063-00 | METAL CHIP | 5% |
| R417 | 1-215-477-00 | CARBON | R827 | 1-216-074-00 | METAL CHIP | R827 | 1-216-074-00 | METAL CHIP | 1/10W |
| R419 | 1-249-433-11 | CARBON | R828 | 1-216-049-00 | METAL CHIP | R828 | 1-216-049-00 | METAL CHIP | 5% |
| R420 | 1-215-473-00 | CARBON | R829 | 1-216-041-00 | METAL CHIP | R829 | 1-216-041-00 | METAL CHIP | 1/4W |
| | | | | | | | | | 5% |
| R421 | 1-216-001-00 | METAL CHIP | R902 | 1-216-066-00 | METAL CHIP | R902 | 1-216-066-00 | METAL CHIP | 1/10W |
| R422 | 1-216-101-00 | METAL CHIP | | | | | | | 5% |
| R427 | 1-216-059-00 | METAL CHIP | | | | | | | 1/10W |
| R430 | 1-216-053-00 | METAL CHIP | | | | | | | 5% |
| R431 | 1-216-025-00 | METAL CHIP | | | | | | | 1/10W |
| | | | | | | | | | 5% |
| R432 | 1-216-095-00 | METAL CHIP | | | | | | | 1/10W |
| R433 | 1-247-854-00 | CARBON | | | | | | | 5% |
| R435 | 1-249-414-11 | CARBON | | | | | | | 1/4W |
| R436 | 1-247-860-00 | CARBON | | | | | | | 5% |
| R437 | 1-216-065-00 | METAL CHIP | | | | | | | 1/4W |
| | | | | | | | | | 5% |
| R438 | 1-249-423-11 | CARBON | | | | | | | 1/4W |
| R439 | 1-249-423-11 | CARBON | | | | | | | 5% |
| R440 | 1-247-844-00 | CARBON | | | | | | | 1/4W |

*A-7068-021-A AF-20 BOARD, COMPLETE (IC501)

CAPACITOR

| | | | |
|------|--------------|-----------------------|-----|
| C501 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V |
| C502 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V |
| C503 | 1-163-137-00 | CERAMIC CHIP 680PF | 10% |
| C504 | 1-124-465-00 | ELECT 0.47MF | 20% |
| C505 | 1-163-145-00 | CERAMIC CHIP 0.0015MF | 10% |

When indicating parts by reference number, please include the board name.

AD-12

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|-------------------|--------------|-----------------------|------------------|-----------|---------------|---------------------|------------------|
| RESISTOR | | | | | | | |
| R701 | 1-216-083-00 | METAL CHIP | 27K 5% 1/10W | C653 | 1-123-661-00 | ELECT | 100MF 20% 6.3V |
| R703 | 1-216-087-00 | METAL CHIP | 39K 5% 1/10W | C654 | 1-123-661-00 | ELECT | 100MF 20% 6.3V |
| R711 | 1-216-057-00 | METAL CHIP | 2.2K 5% 1/10W | C655 | 1-130-490-11 | MYLAR | 0.039MF 5% 50V |
| R712 | 1-216-059-00 | METAL CHIP | 2.7K 5% 1/10W | C656 | 1-163-125-00 | CERAMIC CHIP | 220PF 10% 50V |
| R713 | 1-216-057-00 | METAL CHIP | 2.2K 5% 1/10W | C657 | 1-163-088-00 | CERAMIC CHIP | 5PF 0.25PF 50V |
| R717 | 1-216-117-00 | METAL CHIP | 680K 5% 1/10W | C658 | 1-130-479-00 | MYLAR | 0.0047MF 5% 50V |
| R718 | 1-216-029-00 | METAL CHIP | 150 5% 1/10W | C659 | 1-163-020-00 | CERAMIC CHIP | 0.0082MF 10% 50V |
| R719 | 1-216-022-00 | METAL CHIP | 75 5% 1/10W | C660 | 1-123-612-00 | ELECT | 2.2MF 20% 50V |
| R720 | 1-216-039-00 | METAL CHIP | 390 5% 1/10W | C661 | 1-163-137-00 | CERAMIC CHIP | 680PF 10% 50V |
| R721 | 1-216-049-00 | METAL CHIP | 1K 5% 1/10W | C662 | 1-127-482-11 | ELECT(SOLID) | 10MF 20% 6.3V |
| R722 | 1-216-653-11 | METAL CHIP | 1.2K 0.50% 1/10W | C663 | 1-127-502-00 | ELECT(SOLID) | 0.22MF 20% 25V |
| R723 | 1-216-661-11 | METAL CHIP | 2.7K 0.50% 1/10W | C664 | 1-123-330-00 | ELECT | 22MF 20% 10V |
| R724 | 1-215-485-00 | METAL | 470K 1% 1/6W | IC | | | |
| R751 | 1-216-083-00 | METAL CHIP | 27K 5% 1/10W | IC601 | 8-752-009-90 | IC CX20099 | |
| R753 | 1-216-087-00 | METAL CHIP | 39K 5% 1/10W | RESISTOR | | | |
| R601 | 1-216-057-00 | METAL CHIP | 2.2K 5% 1/10W | R600 | 1-216-025-00 | METAL CHIP | 100 5% 1/10W |
| R602 | 1-249-422-11 | CARBON | 2.7K 5% 1/4W | R601 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| R603 | 1-216-057-00 | METAL CHIP | 2.2K 5% 1/10W | R602 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| VARIABLE RESISTOR | | | | R603 | 1-216-009-00 | METAL CHIP | 22 5% 1/10W |
| RV701 | 1-228-995-00 | RES, ADJ, CARBON 22K | | R604 | 1-216-059-00 | METAL CHIP | 2.7K 5% 1/10W |
| RV703 | 1-228-991-00 | RES, ADJ, CARBON 2.2K | | R605 | 1-216-057-00 | METAL CHIP | 2.2K 5% 1/10W |
| RV705 | 1-228-999-00 | RES, ADJ, CARBON 470K | | R606 | 1-216-045-00 | METAL CHIP | 680 5% 1/10W |
| RV751 | 1-228-995-00 | RES, ADJ, CARBON 22K | | R607 | 1-216-083-00 | METAL CHIP | 27K 5% 1/10W |
| RV753 | 1-228-991-00 | RES, ADJ, CARBON 2.2K | | R608 | 1-216-063-00 | METAL CHIP | 3.9K 5% 1/10W |
| ***** | | | | R609 | 1-216-061-00 | METAL CHIP | 3.3K 5% 1/10W |
| ***** | | | | R610 | 1-216-059-00 | METAL CHIP | 2.7K 5% 1/10W |
| ***** | | | | R611 | 1-216-061-00 | METAL CHIP | 3.3K 5% 1/10W |
| ***** | | | | R612 | 1-216-065-00 | METAL CHIP | 4.7K 5% 1/10W |
| ***** | | | | R613 | 1-215-444-00 | METAL CHIP | 9.1K 5% 1/4W |
| ***** | | | | R614 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| ***** | | | | R617 | 1-216-081-00 | METAL CHIP | 22K 5% 1/10W |
| ***** | | | | R650 | 1-216-025-00 | METAL CHIP | 100 5% 1/10W |
| ***** | | | | R651 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| ***** | | | | R652 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W |
| ***** | | | | R653 | 1-216-009-00 | METAL CHIP | 22 5% 1/10W |
| ***** | | | | R654 | 1-216-059-00 | METAL CHIP | 2.7K 5% 1/10W |
| ***** | | | | R655 | 1-216-057-00 | METAL CHIP | 2.2K 5% 1/10W |
| ***** | | | | R656 | 1-216-045-00 | METAL CHIP | 680 5% 1/10W |
| ***** | | | | R657 | 1-216-083-00 | METAL CHIP | 27K 5% 1/10W |
| ***** | | | | R658 | 1-216-063-00 | METAL CHIP | 3.9K 5% 1/10W |
| ***** | | | | R659 | 1-216-061-00 | METAL CHIP | 3.3K 5% 1/10W |
| ***** | | | | R660 | 1-216-059-00 | METAL CHIP | 2.7K 5% 1/10W |
| ***** | | | | R661 | 1-216-061-00 | METAL CHIP | 3.3K 5% 1/10W |
| ***** | | | | R662 | 1-216-065-00 | METAL CHIP | 4.7K 5% 1/10W |
| ***** | | | | R667 | 1-216-081-00 | METAL CHIP | 22K 5% 1/10W |
| ***** | | | | PIN BOARD | | | |
| ***** | | | | W601 | *1-566-099-11 | PIN, BOARD TO BOARD | 15P |

| Ref.No | Part No. | Description | Remark |
|-------------------|-------------------|----------------------------------------------------------------------------------------------------|---------|
| *A-7068-914-A | MK-2 | BOARD, COMPLETE ***** | |
| CAPACITOR | | | |
| C807 | 1-130-487-00 | MYLAR | 0.022MF |
| C808 | 1-130-487-00 | MYLAR | 0.022MF |
| C809 | 1-130-467-00 | MYLAR | 470PF |
| C810 | 1-130-471-00 | FILM | 0.001MF |
| C827 | 1-130-487-00 | MYLAR | 0.022MF |
| C828 | 1-130-487-00 | MYLAR | 0.022MF |
| C829 | 1-130-467-00 | MYLAR | 470PF |
| C830 | 1-130-471-00 | FILM | 0.001MF |
| C843 | 1-124-443-00 | ELECT | 100MF |
| C851 | 1-101-004-00 | CERAMIC | 0.01MF |
| C852 | 1-102-116-00 | CERAMIC | 680PF |
| CN803 | *1-564-318-00 | PIN, BOARD TO BOARD | 10P |
| IC | | | |
| IC801 | 8-759-913-62 | IC IR3N05 | |
| IC821 | 8-759-913-62 | IC IR3N05 | |
| Q851 | 8-729-178-54 | TRANSISTOR 2SC2785 | |
| RESISTOR | | | |
| R801 | 1-247-793-11 | CARBON | 27 5% |
| R810 | 1-249-423-11 | CARBON | 3.3K 5% |
| R811 | 1-249-428-11 | CARBON | 8.2K 5% |
| R812 | 1-249-436-11 | CARBON | 39K 5% |
| R830 | 1-249-423-11 | CARBON | 3.3K 5% |
| R831 | 1-249-428-11 | CARBON | 8.2K 5% |
| R851 | 1-249-435-11 | CARBON | 33K 5% |
| R852 | 1-247-849-00 | CARBON | 5.6K 5% |
| R853 | 1-247-875-11 | CARBON | 68K 5% |
| R855 | 1-249-435-11 | CARBON | 33K 5% |
| VARIABLE RESISTOR | | | |
| RV801 | 1-228-990-00 | RES, ADJ, METAL GLAZE | 1K |
| RV821 | 1-228-990-00 | RES, ADJ, METAL GLAZE | 1K |
| ***** | | | |
| *A-7060-845-A | VI-20 | BOARD, COMPLETE ***** (Including the CH-44 board(IC010), BS6324(IC011) and BS7443(IC012)) | |
| *3-703-353-07 | SUPPORT, PC BOARD | | |
| CAPACITOR | | | |
| C003 | 1-124-468-11 | ELECT | 100MF |
| C004 | 1-163-117-00 | CERAMIC CHIP | 100PF |
| C005 | 1-163-117-00 | CERAMIC CHIP | 10P |
| C006 | 1-163-117-00 | CERAMIC CHIP | 33PF |
| C007 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C008 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C009 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C010 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C011 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C012 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C013 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C014 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C015 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C016 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C017 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C018 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C019 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C020 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C021 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C022 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C023 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C024 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C025 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C026 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C027 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C028 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C029 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C030 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C031 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C032 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C033 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C034 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C035 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C036 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C037 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C038 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C039 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C040 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C041 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C042 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C043 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C044 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C045 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C046 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C047 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C048 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C049 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C050 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C051 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C052 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C053 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C054 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C055 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C056 | 1-163-093-00 | CERAMIC CHIP | 10P |
| C057 | 1-163-093-0 | | |

When indicating parts by reference number, please include the board name.

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| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|--------|--------------|----------------------|--------|--------|--------------|-----------------------|--------|
| C105 | 1-163-129-00 | CERAMIC CHIP 330PF | 5% | C254 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V |
| C106 | 1-163-111-00 | CERAMIC CHIP 56PF | 5% | C255 | 1-124-907-00 | ELECT | 20% |
| C107 | 1-124-908-11 | ELECT | 20% | C260 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V |
| C110 | 1-163-107-00 | CERAMIC CHIP 39PF | 5% | C261 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% |
| C111 | 1-163-107-00 | CERAMIC CHIP 39PF | 5% | C262 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% |
| C112 | 1-163-111-00 | CERAMIC CHIP 56PF | 5% | C263 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% |
| C113 | 1-163-097-00 | CERAMIC CHIP 15PF | 5% | C264 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% |
| C114 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 5% | C265 | 1-124-927-11 | ELECT | 20% |
| C115 | 1-163-092-00 | CERAMIC CHIP 9PF | 0.25pF | C266 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V |
| C116 | 1-124-908-11 | ELECT | 20% | C267 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% |
| C117 | 1-163-127-00 | CERAMIC CHIP 270PF | 5% | C268 | 1-124-462-00 | ELECT | 20% |
| C201 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% | C301 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V |
| C202 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 5% | C302 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% |
| C203 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 5% | C303 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% |
| C204 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% | C304 | 1-163-113-00 | CERAMIC CHIP 68PF | 5% |
| C205 | 1-163-111-00 | CERAMIC CHIP 56PF | 5% | C305 | 1-163-129-00 | CERAMIC CHIP 330PF | 5% |
| C206 | 1-124-257-00 | ELECT | 20% | C306 | 1-163-129-00 | CERAMIC CHIP 330PF | 5% |
| C207 | 1-163-121-00 | CERAMIC CHIP 150PF | 5% | C307 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V |
| C208 | 1-123-619-00 | ELECT | 20% | C308 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% |
| C209 | 1-163-111-00 | CERAMIC CHIP 56PF | 5% | C309 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V |
| C210 | 1-163-133-00 | CERAMIC CHIP 470PF | 5% | C310 | 1-163-118-00 | CERAMIC CHIP 110PF | 5% |
| C211 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 5% | C311 | 1-124-907-00 | ELECT | 20% |
| C212 | 1-124-904-00 | ELECT | 20% | C312 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V |
| C213 | 1-124-907-00 | ELECT | 20% | C313 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 5% |
| C215 | 1-124-927-11 | ELECT | 20% | C314 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% |
| C216 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% | C315 | 1-124-904-00 | ELECT | 20% |
| C217 | 1-163-113-00 | CERAMIC CHIP 68PF | 5% | C316 | 1-163-019-00 | CERAMIC CHIP 0.0068MF | 50V |
| C218 | 1-163-121-00 | CERAMIC CHIP 150PF | 5% | C317 | 1-124-905-11 | ELECT | 10% |
| C219 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% | C318 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 20% |
| C220 | 1-124-892-11 | ELECT | 20% | C319 | 1-163-093-00 | CERAMIC CHIP 10PF | 5% |
| C221 | 1-163-115-00 | CERAMIC CHIP 82PF | 5% | C320 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V |
| C222 | 1-163-103-00 | CERAMIC CHIP 27PF | 5% | C321 | 1-163-145-00 | CERAMIC CHIP 0.0015MF | 10% |
| C223 | 1-163-115-00 | CERAMIC CHIP 82PF | 5% | C322 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% |
| C224 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% | C323 | 1-124-907-00 | ELECT | 20% |
| C225 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 5% | C324 | 1-163-077-00 | CERAMIC CHIP 0.1MF | 50V |
| C226 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 5% | C325 | 1-163-105-00 | CERAMIC CHIP 33PF | 5% |
| C227 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% | C326 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% |
| C228 | 1-163-111-00 | CERAMIC CHIP 56PF | 5% | C327 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% |
| C229 | 1-124-462-00 | ELECT | 20% | C328 | 1-163-113-00 | CERAMIC CHIP 68PF | 5% |
| C230 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% | C329 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% |
| C236 | 1-124-462-00 | ELECT | 20% | C330 | 1-163-125-00 | CERAMIC CHIP 220PF | 5% |
| C237 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 5% | C331 | 1-163-111-00 | CERAMIC CHIP 56PF | 5% |
| C238 | 1-124-468-11 | ELECT | 20% | C332 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% |
| C239 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 5% | C414 | 1-124-907-00 | ELECT | 20% |
| C240 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% | C415 | 1-163-127-00 | CERAMIC CHIP 270PF | 5% |
| C241 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 5% | C416 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V |
| C242 | 1-124-908-11 | ELECT | 20% | C417 | 1-130-473-00 | MYLAR | 5% |
| C243 | 1-124-908-11 | ELECT | 20% | C418 | 1-124-908-11 | ELECT | 20% |
| C244 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 5% | C424 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V |
| C250 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% | C425 | 1-124-907-00 | ELECT | 20% |
| C251 | 1-163-137-00 | CERAMIC CHIP 680PF | 5% | C426 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V |
| C252 | 1-124-927-11 | ELECT | 20% | C427 | 1-163-063-00 | CERAMIC CHIP 0.022MF | 50V |
| C253 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 5% | C428 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V |

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|--------|---------------|----------------------|--------|--------|-----------------|--------------------------|------------|
| C429 | 1-163-063-00 | CERAMIC CHIP 0.022MF | 50V | DL001 | 1-415-282-00 | DELAY LINE | |
| C430 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | DL002 | 1-415-386-21 | DELAY LINE, 1H (13.3MHZ) | |
| C433 | 1-124-907-00 | ELECT 10MF | 20% | | IC | | |
| C434 | 1-124-907-00 | ELECT 10MF | 20% | IC001 | 8-752-013-00 | IC CX20130 | |
| C437 | 1-124-907-00 | ELECT 10MF | 20% | IC002 | 8-752-013-10 | IC CX20131 | |
| C438 | 1-124-908-11 | ELECT 22MF | 20% | IC003 | 8-759-913-64 | IC CX23064 | |
| C440 | 1-124-908-11 | ELECT 22MF | 20% | IC004 | 8-759-927-52 | IC BA7036LS | |
| C445 | 1-163-077-00 | CERAMIC CHIP 0.1MF | 50V | IC005 | 8-759-202-68 | IC CX20147 | |
| C446 | 1-124-892-11 | ELECT 47MF | 20% | IC007 | 8-752-006-10 | IC CX20061 | |
| C451 | 1-124-443-00 | ELECT 100MF | 20% | IC010 | *A-7068-030-A | CH-44 BOARD, COMPLETE | |
| C452 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | IC011 | 1-807-844-11 | IC BS6324 | |
| C455 | 1-163-115-00 | CERAMIC CHIP 82PF | 5% | IC012 | 1-807-846-11 | IC BS7443 | |
| C456 | 1-124-908-11 | ELECT 22MF | 20% | | JUMPER RESISTOR | | |
| | CONNECTOR | | | JR001 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| CN003 | *1-564-007-00 | PIN, CONNECTOR 8P | | JR002 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| CN007 | *1-564-006-11 | PIN, CONNECTOR 7P | | JR003 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| CN009 | *1-564-028-00 | PIN, CONNECTOR 3P | | JR004 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| CN010 | *1-560-893-00 | PIN, CONNECTOR 5P | | JR005 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| CN011 | *1-564-001-11 | PIN, CONNECTOR 2P | | JR006 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| CN012 | *1-564-003-00 | PIN, CONNECTOR 4P | | JR007 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| CN013 | *1-564-014-00 | PIN, CONNECTOR 4P | | JR008 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| | JACK | | | JR009 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| CNJ001 | 1-561-534-82 | SOCKET 21P | | JR010 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| CNJ002 | 1-507-945-21 | JACK, PIN 1P | | JR011 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| CNJ003 | 1-507-945-21 | JACK, PIN 1P | | JR012 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| | DIODE | | | JR013 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D004 | 8-719-100-03 | DIODE 1S2835 | | JR014 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D005 | 8-719-101-23 | DIODE 1SS123-T1 | | JR015 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D202 | 8-719-100-05 | DIODE 1S2837-T1 | | JR016 | 1-216-295-00 | META CHIP | 0 5% 1/10W |
| D204 | 8-719-101-23 | DIODE 1SS123 | | JR018 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D205 | 8-719-100-03 | DIODE 1S2835 | | JR019 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D206 | 8-719-101-23 | DIODE 1SS123 | | JR020 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D301 | 8-719-100-05 | DIODE 1S2837 | | JR021 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D302 | 8-719-101-23 | DIODE 1SS123 | | JR022 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D303 | 8-719-101-23 | DIODE 1SS123 | | JR023 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D304 | 8-719-101-23 | DIODE 1SS123 | | JR024 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D305 | 8-719-100-03 | DIODE 1S2835 | | JR025 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D402 | 8-719-100-05 | DIODE 1S2837 | | JR026 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D403 | 8-719-106-08 | DIODE RD6.2M-B2 | | JR027 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D412 | 8-719-106-22 | DIODE RD7.5M-B1 | | JR028 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D413 | 8-719-106-22 | DIODE RD7.5M-B1 | | JR029 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D414 | 8-719-106-22 | DIODE RD7.5M-B1 | | JR030 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D415 | 8-719-106-22 | DIODE RD7.5M-B1 | | JR031 | 1-216-295-00 | META CHIP | 0 5% 1/10W |
| D416 | 8-719-106-22 | DIODE RD7.5M-B1 | | JR032 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D417 | 8-719-106-22 | DIODE RD7.5M-B1 | | JR033 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D418 | 8-719-106-22 | DIODE RD7.5M-B1 | | JR034 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D419 | 8-719-106-22 | DIODE RD7.5M-B1 | | JR035 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D501 | 8-719- - | DIODE RD5.1E-B2 | | JR036 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |
| D502 | 8-719-911-19 | DIODE 1SS119 | | JR037 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W |

When indicating parts by reference number, please include the board name.

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| Part A | | | | Part B | | | | Part C | | | | Part D | | | |
|--------|--------------|-------------|--------|--------|----------|-------------|--------|--------|--------------|-------------|--------|--------|----------|-------------|--------|
| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
| JR038 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR043 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR039 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR044 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR040 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR045 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR041 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR046 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR042 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR047 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR043 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR048 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR044 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR049 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR045 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR050 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR046 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR051 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR047 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR052 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR048 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR053 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR049 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR054 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR050 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR055 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR051 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR056 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR052 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR057 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR053 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR058 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR054 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR059 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR055 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR060 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR056 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR061 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR057 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR062 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR058 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR063 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR059 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR064 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR060 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR065 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR061 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR066 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR062 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR067 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR063 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR068 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR064 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR069 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR065 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR070 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR066 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR071 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR067 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR072 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR068 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR073 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR069 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR074 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR070 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR075 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR071 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR076 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR072 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR077 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR073 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR078 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR074 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR079 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR075 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR080 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR076 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR081 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR077 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR082 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR078 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR083 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR079 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR084 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR080 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR085 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR081 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR086 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR082 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR087 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR083 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR088 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR084 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR089 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR085 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | JR090 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | |
| JR086 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | | | | | | | | |
| JR087 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | | | | | | | | |
| JR088 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | | | | | | | | |
| JR089 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | | | | | | | | |
| JR090 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | | | | | | | | | | |

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|--------|--------------|----------------------|------------|---------------|--------------|------------------------|--------|
| JR144 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L205 | 1-408-419-00 | MICRO INDUCTOR 68UH | |
| JR145 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L206 | 1-408-417-00 | MICRO INDUCTOR 47UH | |
| JR146 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L207 | 1-408-420-00 | MICRO INDUCTOR 82UH | |
| JR147 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L208 | 1-408-417-00 | MICRO INDUCTOR 47UH | |
| JR148 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L209 | 1-408-413-00 | MICRO INDUCTOR 22UH | |
| JR149 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L212 | 1-408-413-00 | MICRO INDUCTOR 22UH | |
| JR150 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L213 | 1-408-408-00 | MICRO INDUCTOR 8.2UH | |
| JR151 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L220 | 1-408-411-00 | MICRO INDUCTOR 15UH | |
| JR152 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L221 | 1-408-427-00 | MICRO INDUCTOR 330UH | |
| JR153 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L301 | 1-408-421-00 | MICRO INDUCTOR 100UH | |
| JR154 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L302 | 1-408-413-00 | MICRO INDUCTOR 22UH | |
| JR155 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L303 | 1-408-425-00 | MICRO INDUCTOR 220UH | |
| JR156 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L304 | 1-408-422-00 | MICRO INDUCTOR 120UH | |
| JR157 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L401 | 1-410-118-11 | MICRO INDUCTOR 0.82MMH | |
| JR158 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L402 | 1-408-424-00 | MICRO INDUCTOR 180UH | |
| JR159 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L405 | 1-408-409-00 | MICRO INDUCTOR 10UH | |
| JR160 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L411 | 1-408-422-00 | MICRO INDUCTOR 120UH | |
| JR161 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | L412 | 1-408-421-00 | MICRO INDUCTOR 100UH | |
| JR162 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | VARIABLE COIL | | | |
| JR163 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | LV201 | 1-408-512-00 | COIL (VARIABLE) 10UH | |
| JR164 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | IC LINK | | | |
| JR165 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | PS001 | 1-532-679-00 | LINK, IC (ICP-N15) | |
| JR166 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | TRANSISTOR | | | |
| JR167 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | Q002 | 8-729-901-06 | TRANSISTOR DTA144EK | |
| JR168 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | Q004 | 8-729-901-06 | TRANSISTOR DTC144EK | |
| JR169 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | Q006 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| JR170 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | Q009 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| JR171 | 1-216-296-00 | METAL CHIP | 0 5% 1/8W | Q010 | 8-729-312-22 | TRANSISTOR 2SA1122 | |
| JR172 | 1-216-296-00 | METAL CHIP | 0 5% 1/10W | Q011 | 8-729-312-22 | TRANSISTOR 2SA1122 | |
| JR173 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | Q013 | 8-729-901-00 | TRANSISTOR DTC124EK | |
| JR174 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | Q014 | 8-729-117-54 | TRANSISTOR 2SA1175 | |
| JR175 | 1-216-295-00 | METAL CHIP | 0 5% 1/10W | Q015 | 8-729-901-06 | TRANSISTOR DTC144EK | |
| COIL | | | | | | | |
| L002 | 1-408-416-00 | MICRO INDUCTOR 30UH | | Q018 | 8-729-312-22 | TRANSISTOR 2SA1122 | |
| L003 | 1-408-421-00 | MICRO INDUCTOR 100UH | | Q019 | 8-729-100-76 | TRANSISTOR 2SA812 | |
| L004 | 1-408-427-00 | MICRO INDUCTOR 330UH | | Q020 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| L005 | 1-408-422-00 | MICRO INDUCTOR 120UH | | Q023 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| L009 | 1-408-418-00 | MICRO INDUCTOR 56UH | | Q024 | 8-729-100-76 | TRANSISTOR 2SA812 | |
| L010 | 1-408-420-00 | MICRO INDUCTOR 82UH | | Q025 | 8-729-901-06 | TRANSISTOR DTC144EK | |
| L011 | 1-408-418-00 | MICRO INDUCTOR 56UH | | Q026 | 8-729-901-06 | TRANSISTOR DTA144EK | |
| L012 | 1-408-423-00 | MICRO INDUCTOR 150UH | | Q027 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| L013 | 1-408-421-00 | MICRO INDUCTOR 100UH | | Q100 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| L100 | 1-408-409-00 | MICRO INDUCTOR 10UH | | Q101 | 8-729-901-06 | TRANSISTOR DTC144EK | |
| L101 | 1-408-428-00 | MICRO INDUCTOR 390UH | | Q102 | 8-729-901-06 | TRANSISTOR DTC144EK | |
| L102 | 1-408-409-00 | MICRO INDUCTOR 10UH | | Q103 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| L103 | 1-408-423-00 | MICRO INDUCTOR 150UH | | Q104 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| L105 | 1-408-408-00 | MICRO INDUCTOR 8.2UH | | Q106 | 8-729-901-06 | TRANSISTOR DTA144EK | |
| L106 | 1-408-414-00 | MICRO INDUCTOR 27UH | | Q107 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| L107 | 1-408-422-00 | MICRO INDUCTOR 120UH | | Q110 | 8-729-312-22 | TRANSISTOR 2SA1122C | |
| L201 | 1-408-397-00 | MICRO INDUCTOR 1UH | | Q113 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| L202 | 1-408-397-00 | MICRO INDUCTOR 1UH | | | | | |
| L204 | 1-408-419-00 | MICRO INDUCTOR 68UH | | | | | |

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|--------|--------------|-----------------------|---------|--------|--------------|-------------|---------|
| Q201 | 8-729-901-06 | TRANSISTOR DTC144EK | | R028 | 1-216-049-00 | METAL CHIP | 1K 5% |
| Q202 | 8-729-901-00 | TRANSISTOR DTC124EK | | R029 | 1-216-073-00 | METAL CHIP | 10K 5% |
| Q203 | 8-729-901-00 | TRANSISTOR DTC124EK | | R030 | 1-216-049-00 | METAL CHIP | 1K 5% |
| Q204 | 8-729-901-06 | TRANSISTOR DTC144EK | | R040 | 1-216-065-00 | METAL CHIP | 4.7K 5% |
| Q205 | 8-729-901-06 | TRANSISTOR DTC144EK | | R045 | 1-216-065-00 | METAL CHIP | 4.7K 5% |
| Q206 | 8-729-901-06 | TRANSISTOR DTC144EK | | R046 | 1-216-039-00 | METAL CHIP | 390 5% |
| Q207 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R047 | 1-216-101-00 | METAL CHIP | 150K 5% |
| Q208 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R048 | 1-216-099-00 | METAL CHIP | 120K 5% |
| Q209 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R049 | 1-216-113-00 | METAL CHIP | 470K 5% |
| Q211 | 8-729-901-06 | TRANSISTOR DTC144EK | | R050 | 1-216-075-00 | METAL CHIP | 12K 5% |
| Q215 | 8-729-312-22 | TRANSISTOR 2SA1122 | | R051 | 1-216-081-00 | METAL CHIP | 22K 5% |
| Q216 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R052 | 1-216-077-00 | METAL CHIP | 15K 5% |
| Q217 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R053 | 1-216-063-00 | METAL CHIP | 3.9K 5% |
| Q218 | 8-729-312-22 | TRANSISTOR 2SA1122 | | R054 | 1-216-033-00 | METAL CHIP | 220 5% |
| Q219 | 8-729-901-04 | TRANSISTOR DTA114EK | | R055 | 1-216-109-00 | METAL CHIP | 330K 5% |
| Q220 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R056 | 1-216-049-00 | METAL CHIP | 1K 5% |
| Q221 | 8-729-312-22 | TRANSISTOR 2SA1122 | | R057 | 1-216-081-00 | METAL CHIP | 22K 5% |
| Q222 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R058 | 1-216-081-00 | METAL CHIP | 22K 5% |
| Q301 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R059 | 1-216-089-00 | METAL CHIP | 47K 5% |
| Q302 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R060 | 1-216-091-00 | METAL CHIP | 56K 5% |
| Q304 | 8-729-901-00 | TRANSISTOR DTC124EK | | R061 | 1-216-059-00 | METAL CHIP | 2.7K 5% |
| Q403 | 8-729-901-06 | TRANSISTOR DTA144EK | | R062 | 1-216-083-00 | METAL CHIP | 27K 5% |
| Q404 | 8-729-901-06 | TRANSISTOR DTA144EK | | R063 | 1-216-093-00 | METAL CHIP | 68K 5% |
| Q405 | 8-729-901-06 | TRANSISTOR DTC144EK | | R064 | 1-249-417-11 | CARBON | 1K 5% |
| Q406 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R066 | 1-216-043-00 | METAL CHIP | 560 5% |
| Q407 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R067 | 1-216-037-00 | METAL CHIP | 330 5% |
| Q408 | 8-729-177-33 | TRANSISTOR 2SD773-4 | | R068 | 1-216-045-00 | METAL CHIP | 680 5% |
| Q409 | 8-729-901-06 | TRANSISTOR DTC144EK | | R069 | 1-216-035-00 | METAL CHIP | 270 5% |
| Q410 | 8-729-901-06 | TRANSISTOR DTA144EK | | R070 | 1-216-047-00 | METAL CHIP | 820 5% |
| Q413 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R071 | 1-216-081-00 | METAL CHIP | 22K 5% |
| Q420 | 8-729-312-22 | TRANSISTOR 2SA1122 | | R072 | 1-216-081-00 | METAL CHIP | 22K 5% |
| Q421 | 8-729-178-54 | TRANSISTOR 2SC2785 | | R073 | 1-216-065-00 | METAL CHIP | 4.7K 5% |
| Q423 | 8-729-177-33 | TRANSISTOR 2SD773-4 | | R074 | 1-216-065-00 | METAL CHIP | 4.7K 5% |
| | | RESISTOR | | R075 | 1-216-047-00 | METAL CHIP | 820 5% |
| | | | | R076 | 1-216-089-00 | METAL CHIP | 47K 5% |
| R008 | 1-216-041-00 | METAL CHIP | 470 5% | R078 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R009 | 1-216-037-00 | METAL CHIP | 330 5% | R079 | 1-216-041-00 | METAL CHIP | 470 5% |
| R010 | 1-216-041-00 | METAL CHIP | 470 5% | R080 | 1-216-051-00 | METAL CHIP | 1.2K 5% |
| R012 | 1-216-051-00 | METAL CHIP | 1.2K 5% | R081 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R013 | 1-216-075-00 | METAL CHIP | 12K 5% | R082 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R014 | 1-216-081-00 | METAL CHIP | 22K 5% | R083 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R016 | 1-216-057-00 | METAL CHIP | 2.2K 5% | R084 | 1-216-081-00 | METAL CHIP | 22K 5% |
| R017 | 1-216-055-00 | METAL CHIP | 1.8K 5% | R087 | 1-216-025-00 | METAL CHIP | 100 5% |
| R018 | 1-216-059-00 | METAL CHIP | 2.7K 5% | R100 | 1-216-049-00 | METAL CHIP | 1K 5% |
| R019 | 1-216-057-00 | METAL CHIP | 2.2K 5% | R101 | 1-216-049-00 | METAL CHIP | 1K 5% |
| R020 | 1-216-039-00 | METAL CHIP | 390 5% | R102 | 1-216-039-00 | METAL CHIP | 390 5% |
| R021 | 1-216-043-00 | METAL CHIP | 560 5% | R103 | 1-216-057-00 | METAL CHIP | 2.2K 5% |
| R022 | 1-216-073-00 | METAL CHIP | 10K 5% | R109 | 1-216-091-00 | METAL CHIP | 56K 5% |
| R023 | 1-216-043-00 | METAL CHIP | 560 5% | R110 | 1-216-065-00 | METAL CHIP | 4.7K 5% |
| R024 | 1-216-049-00 | METAL CHIP | 1K 5% | R111 | 1-216-059-00 | METAL CHIP | 2.7K 5% |
| R025 | 1-216-057-00 | METAL CHIP | 2.2K 5% | R112 | 1-216-055-00 | METAL CHIP | 1.8K 5% |
| R026 | 1-216-059-00 | METAL CHIP | 2.7K 5% | R113 | 1-216-031-00 | METAL CHIP | 180 5% |
| R027 | 1-216-057-00 | METAL CHIP | 2.2K 5% | R114 | 1-216-041-00 | METAL CHIP | 470 5% |

When indicating parts by reference number, please include the board name.

| Remark | | | | Remark | | | | | |
|--------|--------------|-------------|---------|--------|----------|--------------|------------|---------|-------|
| Ref.No | Part No. | Description | | Ref.No | Part No. | Description | | | |
| R115 | 1-216-053-00 | METAL CHIP | 1.5K 5% | 1/10W | R230 | 1-216-051-00 | METAL CHIP | 1.2K 5% | 1/10W |
| R116 | 1-216-041-00 | METAL CHIP | 470 5% | 1/10W | R231 | 1-216-045-00 | METAL CHIP | 680 5% | 1/10W |
| R117 | 1-216-049-00 | METAL CHIP | 1K 5% | 1/10W | R232 | 1-216-053-00 | METAL CHIP | 1.5K 5% | 1/10W |
| R118 | 1-216-049-00 | METAL CHIP | 1K 5% | 1/10W | R233 | 1-216-045-00 | METAL CHIP | 680 5% | 1/10W |
| R119 | 1-216-019-00 | METAL CHIP | 56 5% | 1/10W | R234 | 1-216-049-00 | METAL CHIP | 1K 5% | 1/10W |
| R120 | 1-216-081-00 | METAL CHIP | 22K 5% | 1/10W | R236 | 1-216-049-00 | METAL CHIP | 1K 5% | 1/10W |
| R121 | 1-216-081-00 | METAL CHIP | 22K 5% | 1/10W | R237 | 1-216-041-00 | METAL CHIP | 470 5% | 1/10W |
| R128 | 1-216-295-00 | METAL CHIP | 0 5% | 1/10W | R238 | 1-216-049-00 | METAL CHIP | 1K 5% | 1/10W |
| R129 | 1-216-049-00 | METAL CHIP | 1K 5% | 1/10W | R239 | 1-216-041-00 | METAL CHIP | 470 5% | 1/10W |
| R131 | 1-216-057-00 | METAL CHIP | 2.2K 5% | 1/10W | R241 | 1-216-035-00 | METAL CHIP | 270 5% | 1/10W |
| R132 | 1-216-057-00 | METAL CHIP | 2.2K 5% | 1/10W | R246 | 1-216-079-00 | METAL CHIP | 18K 5% | 1/10W |
| R133 | 1-216-033-00 | METAL CHIP | 220 5% | 1/10W | R247 | 1-216-075-00 | METAL CHIP | 12K 5% | 1/10W |
| R134 | 1-216-033-00 | METAL CHIP | 220 5% | 1/10W | R248 | 1-216-051-00 | METAL CHIP | 1.2K 5% | 1/10W |
| R136 | 1-216-041-00 | METAL CHIP | 470 5% | 1/10W | R249 | 1-216-081-00 | METAL CHIP | 22K 5% | 1/10W |
| R137 | 1-216-041-00 | METAL CHIP | 470 5% | 1/10W | R250 | 1-216-081-00 | METAL CHIP | 22K 5% | 1/10W |
| R138 | 1-216-041-00 | METAL CHIP | 470 5% | 1/10W | R251 | 1-216-039-00 | METAL CHIP | 390 5% | 1/10W |
| R139 | 1-216-051-00 | METAL CHIP | 1.2K 5% | 1/10W | R252 | 1-216-027-00 | METAL CHIP | 120 5% | 1/10W |
| R140 | 1-216-041-00 | METAL CHIP | 470 5% | 1/10W | R253 | 1-216-035-00 | METAL CHIP | 270 5% | 1/10W |
| R141 | 1-216-081-00 | METAL CHIP | 22K 5% | 1/10W | R254 | 1-216-049-00 | METAL CHIP | 1K 5% | 1/10W |
| R142 | 1-216-081-00 | METAL CHIP | 22K 5% | 1/10W | R255 | 1-216-083-00 | METAL CHIP | 27K 5% | 1/10W |
| R144 | 1-216-023-00 | METAL CHIP | 82 5% | 1/10W | R256 | 1-216-089-00 | METAL CHIP | 47K 5% | 1/10W |
| R145 | 1-216-029-00 | METAL CHIP | 150 5% | 1/10W | R257 | 1-216-077-00 | METAL CHIP | 15K 5% | 1/10W |
| R146 | 1-216-296-00 | METAL CHIP | 0 5% | 1/8W | R258 | 1-216-073-00 | METAL CHIP | 10K 5% | 1/10W |
| R148 | 1-216-047-00 | METAL CHIP | 820 5% | 1/10W | R265 | 1-216-081-00 | METAL CHIP | 22K 5% | 1/10W |
| R149 | 1-216-049-00 | METAL CHIP | 1K 5% | 1/10W | R266 | 1-216-081-00 | METAL CHIP | 22K 5% | 1/10W |
| R201 | 1-216-009-00 | METAL CHIP | 22 5% | 1/10W | R267 | 1-216-047-00 | METAL CHIP | 820 5% | 1/10W |
| R202 | 1-216-025-00 | METAL CHIP | 100 5% | 1/10W | R268 | 1-216-057-00 | METAL CHIP | 2.2K 5% | 1/10W |
| R203 | 1-216-027-00 | METAL CHIP | 120 5% | 1/10W | R269 | 1-216-045-00 | METAL CHIP | 680 5% | 1/10W |
| R204 | 1-216-081-00 | METAL CHIP | 22K 5% | 1/10W | R270 | 1-216-031-00 | METAL CHIP | 180 5% | 1/10W |
| R205 | 1-216-081-00 | METAL CHIP | 22K 5% | 1/10W | R271 | 1-216-049-00 | METAL CHIP | 1K 5% | 1/10W |
| R206 | 1-216-081-00 | METAL CHIP | 22K 5% | 1/10W | R272 | 1-216-079-00 | METAL CHIP | 18K 5% | 1/10W |
| R207 | 1-216-081-00 | METAL CHIP | 22K 5% | 1/10W | R273 | 1-216-075-00 | METAL CHIP | 12K 5% | 1/10W |
| R208 | 1-216-075-00 | METAL CHIP | 12K 5% | 1/10W | R274 | 1-216-035-00 | METAL CHIP | 270 5% | 1/10W |
| R209 | 1-216-121-00 | METAL CHIP | 1M 5% | 1/10W | R275 | 1-216-017-00 | METAL CHIP | 47 5% | 1/10W |
| R210 | 1-216-117-00 | METAL CHIP | 680K 5% | 1/10W | R276 | 1-216-063-00 | METAL CHIP | 3.9K 5% | 1/10W |
| R211 | 1-216-087-00 | METAL CHIP | 39K 5% | 1/10W | R277 | 1-216-057-00 | METAL CHIP | 2.2K 5% | 1/10W |
| R212 | 1-216-073-00 | METAL CHIP | 10K 5% | 1/10W | R278 | 1-216-059-00 | METAL CHIP | 2.7K 5% | 1/10W |
| R213 | 1-216-025-00 | METAL CHIP | 100 5% | 1/10W | R279 | 1-216-065-00 | METAL CHIP | 4.7K 5% | 1/10W |
| R214 | 1-216-039-00 | METAL CHIP | 390 5% | 1/10W | R280 | 1-216-065-00 | METAL CHIP | 4.7K 5% | 1/10W |
| R215 | 1-216-057-00 | METAL CHIP | 2.2K 5% | 1/10W | R281 | 1-216-044-00 | METAL CHIP | 620 5% | 1/10W |
| R216 | 1-216-085-00 | METAL CHIP | 33K 5% | 1/10W | R282 | 1-216-031-00 | METAL CHIP | 180 5% | 1/10W |
| R217 | 1-216-081-00 | METAL CHIP | 22K 5% | 1/10W | R285 | 1-216-081-00 | METAL CHIP | 22K 5% | 1/10W |
| R218 | 1-216-049-00 | METAL CHIP | 1K 5% | 1/10W | R286 | 1-216-073-00 | METAL CHIP | 10K 5% | 1/10W |
| R219 | 1-216-051-00 | METAL CHIP | 1.2K 5% | 1/10W | R287 | 1-216-035-00 | METAL CHIP | 270 5% | 1/10W |
| R220 | 1-216-065-00 | METAL CHIP | 4.7K 5% | 1/10W | R288 | 1-216-053-00 | METAL CHIP | 1.5K 5% | 1/10W |
| R221 | 1-216-045-00 | METAL CHIP | 680 5% | 1/10W | R289 | 1-216-025-00 | METAL CHIP | 100 5% | 1/10W |
| R222 | 1-216-065-00 | METAL CHIP | 4.7K 5% | 1/10W | R290 | 1-216-083-00 | METAL CHIP | 27K 5% | 1/10W |
| R224 | 1-216-081-00 | METAL CHIP | 22K 5% | 1/10W | R291 | 1-216-081-00 | METAL CHIP | 22K 5% | 1/10W |
| R225 | 1-216-065-00 | METAL CHIP | 4.7K 5% | 1/10W | R292 | 1-216-073-00 | METAL CHIP | 10K 5% | 1/10W |
| R226 | 1-216-057-00 | METAL CHIP | 2.2K 5% | 1/10W | R293 | 1-216-111-00 | METAL CHIP | 390K 5% | 1/10W |
| R227 | 1-216-045-00 | METAL CHIP | 680 5% | 1/10W | R294 | 1-216-071-00 | METAL CHIP | 8.2K 5% | 1/10W |
| R228 | 1-216-049-00 | METAL CHIP | 1K 5% | 1/10W | R297 | 1-216-295-00 | METAL CHIP | 0 5% | 1/10W |
| R229 | 1-216-045-00 | METAL CHIP | 680 5% | 1/10W | R298 | 1-216-073-00 | METAL CHIP | 10K 5% | 1/10W |

When indicating parts by reference number, please include the board name.

VI-20

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|--------|--------------|-------------------------------------|--------|--------|-------------------|----------------------|--------|
| T006 | 1-235-632-11 | BPF | | C040 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V |
| T007 | 1-235-633-11 | BPF | | | TRIMMER | | |
| | | THERMISTOR | | CV001 | 1-141-227-00 | CAP, CERAMIC TRIMMER | |
| TH001 | 1-800-200-00 | THERMISTOR S-3K | | | IC | | |
| | | CRYSTAL | | IC001 | 8-752-003-20 | IC CX20032 | |
| X201 | 1-567-442-11 | VIBRATOR, CRYSTAL | | IC002 | 8-752-202-10 | IC CX22021 | |
| | | ***** | ***** | | COIL | | |
| | | *A-7068-030-A CH-44 BOARD, COMPLETE | | L001 | 1-408-607-00 | MICRO INDUCTOR 22UH | |
| | | ***** | ***** | L002 | 1-407-172-XX | MICRO INDUCTOR 180UH | |
| | | | | L003 | 1-407-168-XX | MICRO INDUCTOR 82UH | |
| | | | | L004 | 1-407-188-XX | MICRO INDUCTOR 6.8UH | |
| | | CAPASITOR | | | TRANSISTOR | | |
| C001 | 1-163-093-00 | CERAMIC CHIP 10PF | 5% | Q001 | 8-729-202-38 | TRANSISTOR 2SC3326N | |
| C002 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 10% | | RESISTOR | | |
| C003 | 1-163-108-00 | CERAMIC CHIP 43PF | 5% | R002 | 1-216-295-00 | METAL CHIP 0 | 5% |
| C004 | 1-163-129-00 | CERAMIC CHIP 330PF | 5% | R003 | 1-216-073-00 | METAL CHIP 10K | 5% |
| C005 | 1-163-129-00 | CERAMIC CHIP 330PF | 5% | R004 | 1-216-057-00 | METAL CHIP 2.2K | 5% |
| | | | | R005 | 1-216-065-00 | METAL CHIP 4.7K | 5% |
| C006 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 50V | R007 | 1-216-053-00 | METAL CHIP 1.5K | 5% |
| C007 | 1-163-063-00 | CERAMIC CHIP 0.022MF | 50V | | TRANSISTOR | | |
| C008 | 1-131-358-41 | TANTALUM | 10% | R008 | 1-216-065-00 | METAL CHIP 4.7K | 5% |
| C009 | 1-124-245-00 | ELECT | 20% | R009 | 1-216-025-00 | METAL CHIP 100 | 5% |
| C011 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | R010 | 1-216-081-00 | METAL CHIP 22K | 5% |
| C012 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | R011 | 1-216-097-00 | METAL CHIP 100K | 5% |
| C013 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V | R012 | 1-216-069-00 | METAL CHIP 6.8K | 5% |
| C014 | 1-124-462-00 | ELECT | 20% | | TRANSISTOR | | |
| C015 | 1-163-121-00 | CERAMIC CHIP 150PF | 5% | R013 | 1-216-057-00 | METAL CHIP 2.2K | 5% |
| C016 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | R014 | 1-216-049-00 | METAL CHIP 1K | 5% |
| C017 | 1-124-257-00 | ELECT | 20% | R015 | 1-216-081-00 | METAL CHIP 22K | 5% |
| C018 | 1-124-251-00 | ELECT | 20% | R016 | 1-216-081-00 | METAL CHIP 22K | 5% |
| C019 | 1-163-063-00 | CERAMIC CHIP 0.022MF | 50V | R017 | 1-216-049-00 | METAL CHIP 1K | 5% |
| C020 | 1-163-076-00 | CERAMIC CHIP 0.068MF | 50V | | TRANSISTOR | | |
| C021 | 1-124-257-00 | ELECT | 20% | R018 | 1-216-049-00 | METAL CHIP 1K | 5% |
| C022 | 1-124-257-00 | ELECT | 20% | R019 | 1-216-077-00 | METAL CHIP 15K | 5% |
| C023 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 50V | R020 | 1-216-037-00 | METAL CHIP 330 | 5% |
| C024 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 5% | R021 | 1-216-077-00 | METAL CHIP 15K | 5% |
| C025 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 50V | R022 | 1-216-081-00 | METAL CHIP 22K | 5% |
| C026 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | | TRANSISTOR | | |
| C027 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 50V | R023 | 1-216-065-00 | METAL CHIP 4.7K | 5% |
| C028 | 1-124-462-00 | ELECT | 20% | R024 | 1-216-025-00 | METAL CHIP 100 | 5% |
| C029 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | R025 | 1-216-057-00 | METAL CHIP 2.2K | 5% |
| C030 | 1-163-088-00 | CERAMIC CHIP 5PF | 0.25PF | R026 | 1-216-073-00 | METAL CHIP 10K | 5% |
| C031 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | R029 | 1-216-103-00 | METAL CHIP 180K | 5% |
| | | | | | TRANSISTOR | | |
| C032 | 1-163-129-00 | CERAMIC CHIP 330PF | 5% | R030 | 1-216-065-00 | METAL CHIP 4.7K | 5% |
| C033 | 1-163-091-00 | CERAMIC CHIP 8PF | 0.25PF | | VARIABLE RESISTOR | | |
| C034 | 1-163-097-00 | CERAMIC CHIP 15PF | 5% | | | | |
| C035 | 1-163-123-00 | CERAMIC CHIP 180PF | 5% | RV001 | 1-230-524-11 | RES, ADJ, SOLID 22K | |
| C036 | 1-163-129-00 | CERAMIC CHIP 330PF | 5% | RV002 | 1-230-523-11 | RES, ADJ, SOLID 10K | |
| | | | | | | | |
| C037 | 1-163-129-00 | CERAMIC CHIP 330PF | 5% | | | | |
| C038 | 1-124-249-00 | ELECT | 20% | | | | |
| C039 | 1-124-252-00 | ELECT | 20% | | | | |

When indicating parts by reference number, please include the board name.

CH-44

IC BS6324

IC BS7443

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|-------------|---------------|--------------------------|--------|------------|--------------|----------------------|---------|
| TRANSFORMER | | | | TRANSISTOR | | | |
| T001 | 1-409-394-11 | TRAP, CHROMA EMPHASIS | | Q001 | 8-729-100-66 | TRANSISTOR 2SC1623 | |
| JACK | | | | Q002 | 8-729-100-66 | TRANSISTOR 2SC1623 | |
| W001 | *1-566-103-11 | PIN, BOARD TO BOARD, 19P | | Q003 | 8-729-100-66 | TRANSISTOR 2SC1623 | |
| W002 | *1-566-102-11 | PIN, BOARD TO BOARD, 18P | | Q004 | 8-729-100-66 | TRANSISTOR 2SC1623 | |
| CRYSTAL | | | | Q005 | 8-729-100-66 | TRANSISTOR 2SC1623 | |
| X001 | 1-527-345-00 | CRYSTAL, OSC (4.43MHz) | | RESISTOR | | | |
| ***** | | | | R001 | 1-216-057-00 | METAL CHIP 2.2K 5% | 1/10W |
| ***** | | | | R002 | 1-216-049-00 | METAL CHIP 1K 5% | 1/10W |
| ***** | | | | R003 | 1-216-041-00 | METAL CHIP 470 5% | 1/10W |
| ***** | | | | R004 | 1-216-033-00 | METAL CHIP 220 5% | 1/10W |
| ***** | | | | R005 | 1-216-047-00 | METAL CHIP 820 5% | 1/10W |
| IC011 | 1-807-844-11 | IC BS6324 | | R006 | 1-216-045-00 | METAL CHIP 680 5% | 1/10W |
| ***** | | | | R008 | 1-216-059-00 | METAL CHIP 2.7K 5% | 1/10W |
| CAPACITOR | | | | R009 | 1-216-035-00 | METAL CHIP 270 5% | 1/10W |
| C001 | 1-124-462-00 | ELECT 10MF | 20% | R010 | 1-216-035-00 | METAL CHIP 270 5% | 1/10W |
| C002 | 1-163-035-00 | CERAMIC CHIP 0.047MF | | R011 | 1-216-041-00 | METAL CHIP 470 5% | 1/10W |
| C003 | 1-163-021-00 | CERAMIC CHIP 0.01MF | | R012 | 1-216-077-00 | METAL CHIP 15K 5% | 1/10W |
| C004 | 1-163-021-00 | CERAMIC CHIP 0.01MF | | R013 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| C005 | 1-163-021-00 | CERAMIC CHIP 0.01MF | | R014 | 1-216-043-00 | METAL CHIP 560 5% | 1/10W |
| C006 | 1-163-021-00 | CERAMIC CHIP 0.01MF | | R016 | 1-216-075-00 | METAL CHIP 12K 5% | 1/10W |
| C007 | 1-163-035-00 | CERAMIC CHIP 0.047MF | | R017 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| C008 | 1-163-141-00 | CERAMIC CHIP 1000PF | 5% | R018 | 1-216-033-00 | METAL CHIP 220 5% | 1/10W |
| C009 | 1-163-021-00 | CERAMIC CHIP 0.01MF | | R019 | 1-216-021-00 | METAL CHIP 68 5% | 1/10W |
| C010 | 1-163-021-00 | CERAMIC CHIP 0.01MF | | R021 | 1-216-043-00 | METAL CHIP 560 5% | 1/10W |
| C011 | 1-163-021-00 | CERAMIC CHIP 0.01MF | | R022 | 1-216-045-00 | METAL CHIP 680 5% | 1/10W |
| C012 | 1-163-033-00 | CERAMIC CHIP 0.022MF | | R023 | 1-216-071-00 | METAL CHIP 8.2K 5% | 1/10W |
| C013 | 1-163-095-00 | CERAMIC CHIP 12PF | 5% | R024 | 1-216-039-00 | METAL CHIP 390 5% | 1/10W |
| C014 | 1-163-021-00 | CERAMIC CHIP 0.01MF | | R025 | 1-216-079-00 | METAL CHIP 18K 5% | 1/10W |
| C015 | 1-163-021-00 | CERAMIC CHIP 0.01MF | | R026 | 1-216-079-00 | METAL CHIP 18K 5% | 1/10W |
| C016 | 1-163-021-00 | CERAMIC CHIP 0.01MF | | R027 | 1-216-049-00 | METAL CHIP 1K 5% | 1/10W |
| C018 | 1-124-462-00 | ELECT 10MF | 20% | ***** | | | |
| C019 | 1-163-035-00 | CERAMIC CHIP 0.047MF | | IC012 | 1-807-846-11 | IC BS7443 | |
| ***** | | | | ***** | | | |
| DIODE | | | | CAPACITOR | | | |
| D001 | 8-719-911-19 | DIODE 1SS119 | | C001 | 1-163-120-00 | CERAMIC CHIP 130PF | 5% |
| D002 | 8-719-911-19 | DIODE 1SS119 | | C002 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| TRANSISTOR | | | | C003 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| DT001 | 8-729-901-01 | TRANSISTOR DTC144EK | | C004 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| CONNECTOR | | | | C005 | 1-124-236-00 | CERAMIC CHIP 47MF | 20% 16V |
| J001 | 1-564-549-11 | PIN, BOARD TO BOARD 10P | | C006 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| J002 | 1-564-548-11 | PIN, BOARD TO BOARD 5P | | C007 | 1-163-141-00 | CERAMIC CHIP 1000PF | 50V |
| COIL | | | | C008 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| L001 | 1-408-415-00 | MICRO INDUCTOR 33UH | | C009 | 1-163-120-00 | CERAMIC CHIP 130PF | 5% |
| L002 | 1-408-415-00 | MICRO INDUCTOR 33UH | | C010 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| ***** | | | | C011 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| ***** | | | | C012 | 1-163-115-00 | CERAMIC CHIP 82PF | 5% |
| ***** | | | | C013 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| ***** | | | | C014 | 1-124-255-00 | CERAMIC CHIP 1.0MF | 20% |

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark |
|----------------------------------------------|--------------|------------------------|--------|
| <u>DIODE</u> | | | |
| D001 | 8-719-911-19 | DIODE 1SS119 | |
| D002 | 8-719-911-19 | DIODE 1SS119 | |
| D003 | 8-719-911-19 | DIODE 1SS119 | |
| D004 | 8-719-911-19 | DIODE 1SS119 | |
| <u>TRANSISTOR</u> | | | |
| DT001 | 8-729-901-04 | TRANSISTOR DT114EK | |
| DT002 | 8-729-901-04 | TRANSISTOR DT114EK | |
| DT003 | 8-729-901-04 | TRANSISTOR DT114EK | |
| DT004 | 8-729-901-04 | TRANSISTOR DT114EK | |
| DT005 | 8-729-901-04 | TRANSISTOR DT114EK | |
| DT006 | 8-729-901-04 | TRANSISTOR DT114EK | |
| <u>IC</u> | | | |
| IC001 | 8-759-925-60 | IC BA401 | |
| <u>CONNECTOR</u> | | | |
| J001 | 1-506-592-11 | PIN, BOARD TO BOARD 4P | |
| J002 | 1-506-592-11 | PIN, BOARD TO BOARD 4P | |
| <u>TRANSISTOR</u> | | | |
| Q001 | 8-729-100-66 | TRANSISTOR 2SC1623 | |
| Q002 | 8-729-100-66 | TRANSISTOR 2SC1623 | |
| Q003 | 8-729-100-66 | TRANSISTOR 2SC1623 | |
| Q004 | 8-729-100-66 | TRANSISTOR 2SC1623 | |
| <u>RESISTOR</u> | | | |
| R001 | 1-216-067-00 | METAL CHIP 5.6K 5% | 1/10W |
| R002 | 1-216-063-00 | METAL CHIP 3.9K 5% | 1/10W |
| R003 | 1-216-041-00 | METAL CHIP 470 5% | 1/10W |
| R004 | 1-216-037-00 | METAL CHIP 330 5% | 1/10W |
| R005 | 1-216-039-00 | METAL CHIP 390 5% | 1/10W |
| R006 | 1-216-049-00 | METAL CHIP 1K 5% | 1/10W |
| R007 | 1-216-049-00 | METAL CHIP 1K 5% | 1/10W |
| R008 | 1-216-031-00 | METAL CHIP 180 5% | 1/10W |
| R009 | 1-216-057-00 | METAL CHIP 2.2K 5% | 1/10W |
| R010 | 1-216-063-00 | METAL CHIP 3.9K 5% | 1/10W |
| R011 | 1-216-057-00 | METAL CHIP 2.2K 5% | 1/10W |
| R012 | 1-216-051-00 | METAL CHIP 1.2K 5% | 1/10W |
| R013 | 1-216-049-00 | METAL CHIP 1K 5% | 1/10W |
| R014 | 1-216-057-00 | METAL CHIP 2.2K 5% | 1/10W |
| R015 | 1-216-069-00 | METAL CHIP 6.8K 5% | 1/10W |
| R016 | 1-216-061-00 | METAL CHIP 3.3K 5% | 1/10W |
| R017 | 1-216-045-00 | METAL CHIP 680 5% | 1/10W |
| R018 | 1-216-033-00 | METAL CHIP 220 5% | 1/10W |
| R019 | 1-216-035-00 | METAL CHIP 270 5% | 1/10W |
| R020 | 1-216-053-00 | METAL CHIP 1.5K 5% | 1/10W |
| R021 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| R022 | 1-216-045-00 | METAL CHIP 680 5% | 1/10W |
| R023 | 1-216-045-00 | METAL CHIP 680 5% | 1/10W |
| R024 | 1-216-065-00 | METAL CHIP 4.7K 5% | 1/10W |
| Ref.No | Part No. | Description | Remark |
| R025 | 1-216-065-00 | METAL CHIP 4.7K 5% | 1/10W |
| R026 | 1-216-065-00 | METAL CHIP 4.7K 5% | 1/10W |
| R027 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| R028 | 1-216-295-00 | METAL CHIP 0 5% | 1/10W |
| ***** | | | |
| *A-7060-842-A FT-33 BOARD, COMPLETE ***** | | | |
| *3-689-521-01 HOLDER, LED, ROUND | | | |
| *3-691-611-11 KNOB (S), CONTROL | | | |
| *3-697-607-11 HOLDER (SU), LED | | | |
| *3-716-870-01 HOLDER (LEFT), INDICATION TUBE | | | |
| *3-716-871-01 HOLDER(RIGHT), INDICATION TUBE | | | |
| <u>CAPACITOR</u> | | | |
| C003 | 1-163-093-00 | CERAMIC CHIP 10PF | 5% 50V |
| C009 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V |
| C010 | 1-124-258-00 | ELECT 3.3MF | 50V |
| C011 | 1-163-097-00 | CERAMIC CHIP 15PF | 5% 50V |
| C012 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% 50V |
| C013 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V |
| C014 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V |
| C015 | 1-124-255-00 | ELECT 1MF | 50V |
| C016 | 1-124-462-00 | ELECT 10MF | 16V |
| C017 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V |
| C018 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V |
| C019 | 1-124-462-00 | ELECT 10MF | 16V |
| C103 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C104 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| <u>TRIMMER</u> | | | |
| CV001 | 1-141-294-11 | CAP, TRIMMER | |
| <u>DIODE</u> | | | |
| D001 | 8-719-801-52 | DIODE 1SS190 | |
| D002 | 8-719-801-52 | DIODE 1SS190 | |
| D003 | 8-719-801-52 | DIODE 1SS190 | |
| D004 | 8-719-801-52 | DIODE 1SS190 | |
| D005 | 8-719-801-52 | DIODE 1SS190 | |
| D006 | 8-719-801-52 | DIODE 1SS190 | |
| D007 | 8-719-801-52 | DIODE 1SS190 | |
| D008 | 8-719-801-52 | DIODE 1SS190 | |
| D009 | 8-719-801-52 | DIODE 1SS190 | |
| D010 | 8-719-801-52 | DIODE 1SS190 | |
| D011 | 8-719-801-52 | DIODE 1SS190 | |
| D012 | 8-719-801-52 | DIODE 1SS190 | |
| D013 | 8-719-801-52 | DIODE 1SS190 | |
| D024 | 8-719-106-43 | DIODE RD9.1M-81 | |
| D025 | 8-719-801-52 | DIODE 1SS190 | |
| D026 | 8-719-801-52 | DIODE 1SS190 | |
| D031 | 8-719-812-30 | DIODE TL0123 | |
| D032 | 8-719-812-32 | DIODE TL1123 | |
| D033 | 8-719-812-32 | DIODE TL1123 | |

When indicating parts by reference number, please include the board name.

FT-33

| Ref.No | Part No. | Description | Remark |
|----------------|--------------|-----------------------------|--------|
| D034 | 8-719-812-32 | DIODE TL1Y123 | |
| D035 | 8-719-812-33 | DIODE TLG123A | |
| D036 | 8-719-812-33 | DIODE TLG123A | |
| D037 | 8-719-812-31 | DIODE TLR123 | |
| D038 | 8-719-812-31 | DIODE TLR123 | |
| D039 | 8-719-812-31 | DIODE TLR123 | |
| D041 | 8-719-812-30 | DIODE TLO123 | |
| D101 | 8-719-812-30 | DIODE TLO123 | |
| IC | | | |
| IC001 | 8-759-113-51 | IC UPD75208G-549-1B | |
| IC002 | 8-752-800-70 | IC CXP5016-191Q | |
| IC003 | 8-759-604-09 | IC M51955B1 | |
| IC004 | 8-759-201-61 | IC TC40H004F | |
| IC006 | 8-759-937-21 | IC CXD1078M | |
| IC101 | 8-759-605-42 | IC M50725-651FP | |
| INDICATOR TUBE | | | |
| ND001 | 1-519-410-11 | INDICATOR TUBE, FLUORESCENT | |
| TRANSISTOR | | | |
| Q101 | 8-729-100-76 | TRANSISTOR 2SA812 | |
| Q102 | 8-729-100-76 | TRANSISTOR 2SA812 | |
| RESISTOR | | | |
| R001 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| R002 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| R003 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| R004 | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W |
| R005 | 1-216-104-00 | METAL CHIP 200K 5% | 1/10W |
| R006 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| R007 | 1-216-081-00 | METAL CHIP 22K 5% | 1/10W |
| R008 | 1-216-081-00 | METAL CHIP 22K 5% | 1/10W |
| R009 | 1-216-093-00 | METAL CHIP 68K 5% | 1/10W |
| R010 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| R011 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| R022 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| R023 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| R024 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| R025 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| R026 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| R051 | 1-216-041-00 | METAL CHIP 470 5% | 1/10W |
| R052 | 1-216-041-00 | METAL CHIP 470 5% | 1/10W |
| R053 | 1-216-041-00 | METAL CHIP 470 5% | 1/10W |
| R056 | 1-216-041-00 | METAL CHIP 470 5% | 1/10W |
| R101 | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W |
| R102 | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W |
| R103 | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W |
| R104 | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W |
| R105 | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W |
| R106 | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W |
| R107 | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W |

| Ref.No | Part No. | Description | Remark |
|-------------------|--------------|----------------------|--------|
| R109 | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W |
| R110 | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W |
| R111 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| R121 | 1-216-049-00 | METAL CHIP 1K 5% | 1/10W |
| R122 | 1-216-049-00 | METAL CHIP 1K 5% | 1/10W |
| R123 | 1-216-683-11 | METAL CHIP 22K 0.50% | 1/10W |
| R125 | 1-216-037-00 | METAL CHIP 330 5% | 1/10W |
| R126 | 1-216-041-00 | METAL CHIP 470 5% | 1/10W |
| R129 | 1-216-065-00 | METAL CHIP 4.7K 5% | 1/10W |
| R133 | 1-216-041-00 | METAL CHIP 470 5% | 1/10W |
| VARIABLE RESISTOR | | | |
| RV001 | 1-237-219-11 | RES, VAR, CARBON 1K | |
| SWITCH | | | |
| SW001 | 1-570-865-11 | SWITCH, SLIDE | |
| SW002 | 1-570-854-11 | SWITCH, SLIDE | |
| SW003 | 1-570-854-11 | SWITCH, SLIDE | |
| SW004 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW005 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW006 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW007 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW011 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW012 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW013 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW014 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW015 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW016 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW017 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW018 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW019 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW020 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW021 | 1-554-088-00 | SWITCH, KEY BOARD | |
| SW022 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW023 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW024 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW025 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW101 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW102 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW103 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW104 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW105 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW106 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW107 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW108 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW120 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW121 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW122 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW123 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW124 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW125 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW126 | 1-554-174-42 | SWITCH, KEY BOARD | |
| SW127 | 1-554-174-42 | SWITCH, KEY BOARD | |

When indicating parts by reference number, please include the board name.

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark |
|-----------------------------------------------|---------------|----------------------|--------|
| *****A-7060-843-A PR-13 BOARD, COMPLETE ***** | | | |
| CONNECTOR | | | |
| CN001 | *1-564-012-00 | PIN, CONNECTOR 2P | |
| CN002 | *1-564-018-11 | PIN, CONNECTOR 8P | |
| DIODE | | | |
| D002 | 8-719-911-19 | DIODE 1SS119 | |
| D003 | 8-719-911-19 | DIODE 1SS119 | |
| D004 | 8-719-911-19 | DIODE 1SS119 | |
| SWITCH | | | |
| S003 | 1-553-716-00 | SWITCH, SLIDE | |
| S004 | 1-554-174-00 | SWITCH, KEY BOARD | |
| S005 | 1-554-174-00 | SWITCH, KEY BOARD | |
| S006 | 1-553-716-00 | SWITCH, SLIDE | |
| S007 | 1-553-716-00 | SWITCH, SLIDE | |
| S008 | 1-554-174-00 | SWITCH, KEY BOARD | |
| S009 | 1-554-174-00 | SWITCH, KEY BOARD | |
| S010 | 1-554-174-00 | SWITCH, KEY BOARD | |
| S011 | 1-554-174-00 | SWITCH, KEY BOARD | |
| S013 | 1-554-174-00 | SWITCH, KEY BOARD | |
| *****A-7060-917-A VP-1 BOARD, COMPLETE ***** | | | |
| CAPACITOR | | | |
| C001 | 1-163-097-00 | CERAMIC CHIP 15PF | 50V |
| C002 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 50V |
| C003 | 1-163-133-00 | CERAMIC CHIP 470PF | 50V |
| C004 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 25V |
| C005 | 1-163-127-00 | CERAMIC CHIP 270PF | 50V |
| C006 | 1-163-117-00 | CERAMIC CHIP 100PF | 50V |
| C007 | 1-163-097-00 | CERAMIC CHIP 15PF | 50V |
| C008 | 1-124-245-00 | ELECT | 16V |
| C009 | 1-163-115-00 | CERAMIC CHIP 82PF | 50V |
| C010 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 25V |
| C011 | 1-124-234-00 | ELECT | 16V |
| C012 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 25V |
| C013 | 1-163-833-00 | CERAMIC CHIP 0.068MF | 25V |
| C014 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 25V |
| C015 | 1-124-245-00 | ELECT | 16V |
| C016 | 1-163-105-00 | CERAMIC CHIP 33PF | 50V |
| C017 | 1-163-105-00 | CERAMIC CHIP 33PF | 50V |
| C018 | 1-163-033-00 | CERAMIC CHIP 0.022MF | 10% |
| CONNECTOR | | | |
| CN001 | *1-564-018-11 | PIN, CONNECTOR 8P | |
| CN002 | *1-564-014-00 | PIN, CONNECTOR 4P | |

| Ref.No | Part No. | Description | Remark |
|-----------------------------------------------|--------------|-----------------------|--------|
| *****A-7060-482-A TS-50 BOARD, COMPLETE ***** | | | |
| CAPACITOR | | | |
| C101 | 1-123-307-00 | ELECT | 10V |
| C102 | 1-163-117-00 | CERAMIC CHIP 100PF | 50V |
| C103 | 1-123-369-00 | ELECT | 25V |
| C104 | 1-163-109-00 | CERAMIC CHIP 47PF | 50V |
| C105 | 1-163-109-00 | CERAMIC CHIP 47PF | 50V |
| C106 | 1-123-822-00 | ELECT | 10V |
| C107 | 1-163-019-00 | CERAMIC CHIP 0.0068MF | 20% |
| C108 | 1-123-356-00 | ELECT | 10V |
| C109 | 1-123-318-00 | ELECT | 16V |
| C110 | 1-123-379-00 | ELECT | 50V |
| C111 | 1-123-369-00 | ELECT | 25V |
| C112 | 1-123-356-00 | ELECT | 16V |
| C113 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 20% |
| C114 | 1-130-483-00 | MYLAR | 50V |
| C115 | 1-123-816-00 | ELECT | 50V |
| C116 | 1-130-483-00 | MYLAR | 50V |
| C117 | 1-123-369-00 | ELECT | 25V |
| C118 | 1-123-369-00 | ELECT | 25V |
| C119 | 1-130-483-00 | MYLAR | 50V |
| C120 | 1-123-379-00 | ELECT | 20% |
| C121 | 1-163-117-00 | CERAMIC CHIP 100PF | 50V |

When indicating parts by reference number, please include the board name.

DS-16

The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

DS-16

DR-35

| Ref.No | Part No. | Description | Remark |
|-------------------------------------------|----------------|------------------------------|----------|
| C404 | Δ 1-161-742-00 | CERAMIC 0.0022MF | 20% 400V |
| C405 | Δ 1-161-742-00 | CERAMIC 0.0022MF | 20% 400V |
| CONNECTOR | | | |
| CN401 | *1-560-891-00 | PIN, CONNECTOR 3P | |
| FUSE | | | |
| F401 | Δ 1-532-279-00 | FUSE, TIME-LAG (T500mA 250V) | |
| IC LINK | | | |
| PS402 | Δ 1-532-847-21 | LINK, IC (REF6300) | |
| PS403 | Δ 1-532-847-21 | LINK, IC (REF6300) | |
| TRANSFORMER | | | |
| T402 | Δ 1-421-357-31 | TRANSFORMER, LINE FILTER | |
| ***** | | | |
| *A-7060-585-A DR-35 BOARD, COMPLETE ***** | | | |
| 7-685-646-79 SCREW #8VTP 3X8 TYPE2 IT-3 | | | |
| CAPACITOR | | | |
| C201 | 1-124-255-00 | ELECT 1MF | 50V |
| C202 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 20% 50V |
| C203 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 5% 25V |
| C204 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C205 | 1-123-874-00 | ELECT 470MF | 16V |
| C207 | 1-124-124-00 | ELECT | 20% |
| C208 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 6.3V |
| C209 | 1-124-124-00 | ELECT 220MF | 25V |
| C210 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 20% |
| C211 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 5% 50V |
| C212 | 1-124-255-00 | ELECT 1MF | 50V |
| C213 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C214 | 1-123-874-00 | ELECT 470MF | 16V |
| C216 | 1-123-333-00 | ELECT 100MF | 25V |
| C217 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 5% 50V |
| C218 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 20% |
| C219 | 1-163-139-00 | CERAMIC CHIP 820PF | 5% 50V |
| C220 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C221 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C224 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C225 | 1-123-874-00 | ELECT 470MF | 16V |
| C226 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C227 | 1-123-336-00 | ELECT 470MF | 25V |
| C228 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 20% |
| C229 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 20% |
| C230 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C231 | 1-123-299-00 | ELECT 1000MF | 20% 6.3V |
| C232 | 1-123-299-00 | ELECT 1000MF | 20% 6.3V |
| C233 | 1-123-323-00 | ELECT 470MF | 20% 16V |

| Ref.No | Part No. | Description | Remark |
|-----------------|----------------|--------------------|----------|
| C235 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C240 | 1-124-123-00 | ELECT 100MF | 20% 6.3V |
| C241 | 1-123-296-00 | ELECT 220MF | 20% 6.3V |
| CONNECTOR | | | |
| CN201 | *1-560-892-00 | PIN, CONNECTOR 4P | |
| CN202 | *1-560-895-00 | PIN, CONNECTOR 7P | |
| CN203 | *1-560-894-00 | PIN, CONNECTOR 6P | |
| CN204 | *1-560-890-00 | PIN, CONNECTOR 2P | |
| DIODE | | | |
| D201 | 8-719-200-00 | DIODE 31DQ05 | |
| D202 | 8-719-200-00 | DIODE 31DQ05 | |
| D203 | 8-719-200-00 | DIODE 31DQ05 | |
| D204 | 8-719-100-03 | DIODE 1S2835 | |
| D205 | Δ 8-719-110-02 | DIODE RD7.5ESB1 | |
| IC | | | |
| IC201 | 8-759-908-95 | IC TL1451CNS | |
| IC202 | 8-759-908-95 | IC TL1451CNS | |
| JUMPER RESISTOR | | | |
| JR001 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR002 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR003 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR004 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR005 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR006 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR007 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR008 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR009 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR010 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR011 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR012 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR013 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR014 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR015 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR016 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR017 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR018 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR019 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR020 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR021 | 1-216-296-00 | METAL CHIP 0 | 5% 1/8W |
| JR022 | 1-216-296-00 | METAL CHIP 0 | 5% 1/10W |
| JR023 | 1-216-296-00 | METAL CHIP 0 | 5% 1/10W |
| JR024 | 1-216-296-00 | METAL CHIP 0 | 5% 1/10W |
| JR025 | 1-216-296-00 | METAL CHIP 0 | 5% 1/10W |
| JR026 | 1-216-296-00 | METAL CHIP 0 | 5% 1/10W |
| JR027 | 1-216-296-00 | METAL CHIP 0 | 5% 1/10W |
| JR028 | 1-216-296-00 | METAL CHIP 0 | 5% 1/10W |
| JR029 | 1-216-296-00 | METAL CHIP 0 | 5% 1/10W |
| JR030 | 1-216-296-00 | METAL CHIP 0 | 5% 1/10W |

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When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Ref.No | Part No. | Description | Remark |
|--------|--------------|----------------------|--------|--------------|------------------------------------|---------|
| L201 | 1-408-945-00 | COIL, CHOKO 200UH | R221 | 1-216-085-00 | METAL CHIP | 1/10W |
| L202 | 1-408-944-00 | COIL, CHOKO 20UH | R222 | 1-216-085-00 | METAL CHIP | 33K 5% |
| L203 | 1-408-944-00 | COIL, CHOKO 20UH | R223 | 1-216-067-00 | METAL CHIP | 33K 5% |
| L205 | 1-408-944-00 | COIL, CHOKO 20UH | R224 | 1-216-115-00 | METAL CHIP | 5.6K 5% |
| L206 | 1-408-945-00 | COIL, CHOKO 200UH | R225 | 1-216-055-00 | METAL CHIP | 560K 5% |
| L207 | 1-408-944-00 | COIL, CHOKO 20UH | R226 | 1-216-055-00 | METAL CHIP | 1.8K 5% |
| L208 | 1-408-944-00 | COIL, CHOKO 20UH | R227 | 1-216-065-00 | METAL CHIP | 1.8K 5% |
| L209 | 1-408-944-00 | COIL, CHOKO 20UH | R228 | 1-216-099-00 | METAL CHIP | 4.7K 5% |
| L210 | 1-408-944-00 | COIL, CHOKO 20UH | R229 | 1-216-075-00 | METAL CHIP | 120K 5% |
| L211 | 1-408-944-00 | COIL, CHOKO 20UH | R230 | 1-216-081-00 | METAL CHIP | 12K 5% |
| L264 | 1-408-945-00 | COIL, CHOKO 200UH | R232 | 1-216-055-00 | METAL CHIP | 22K 5% |
| | | | R233 | 1-216-091-00 | METAL CHIP | 1.8K 5% |
| | | | | | 56K 5% | 1/10W |
| | | | | | VARIABLE RESISTOR | |
| P5202A | 1-532-679-21 | LINK, IC (ICP-F15) | RV201 | 1-230-523-11 | RES, ADJ, METAL GLAZE 10K | |
| | | | RV202 | 1-230-523-11 | RES, ADJ, METAL GLAZE 10K | |
| | | | RV203 | 1-230-522-11 | RES, ADJ, METAL GLAZE 4.7K | |
| | | | | | ***** | |
| | | | | | *A-7068-031-A TC-3 BOARD, COMPLETE | |
| | | | | | ***** | |
| | | | | | CAPACITOR | |
| Q201 | 8-729-112-61 | TRANSISTOR 2SA1441-L | C001 | 1-124-236-00 | ELECT | 47MF |
| Q202 | 8-729-100-66 | TRANSISTOR 2SC1623 | C002 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 20% |
| Q203 | 8-729-100-76 | TRANSISTOR 2SA812 | C003 | 1-163-123-00 | CERAMIC CHIP 180PF | 5% |
| Q204 | 8-729-113-33 | TRANSISTOR 2SB733-4 | C004 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 5% |
| Q205 | 8-729-112-61 | TRANSISTOR 2SA1441-L | C005 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% |
| Q206 | 8-729-100-66 | TRANSISTOR 2SC1623 | C006 | 1-163-019-00 | CERAMIC CHIP 0.0068MF | 10% |
| Q207 | 8-729-100-76 | TRANSISTOR 2SA812 | C007 | 1-130-026-00 | FILM 0.0047MF | 5% |
| Q208 | 8-729-901-01 | TRANSISTOR DTC144EK | C008 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% |
| Q209 | 8-729-112-61 | TRANSISTOR 2SA1441-L | C009 | 1-124-245-00 | ELECT 4.7MF | 20% |
| Q210 | 8-729-100-66 | TRANSISTOR 2SC1623 | C010 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 5% |
| Q211 | 8-729-100-76 | TRANSISTOR 2SA812 | C011 | 1-123-333-00 | ELECT 100MF | 20% |
| Q212 | 8-729-901-01 | TRANSISTOR DTC144EK | C012 | 1-135-072-21 | TANTAL. CHIP 0.22MF | 20% |
| Q213 | 8-729-901-01 | TRANSISTOR DTC144EK | C013 | 1-163-075-00 | CERAMIC CHIP 0.047MF | 5% |
| Q214 | 8-729-901-01 | TRANSISTOR DTC144EK | C014 | 1-123-333-00 | ELECT 100MF | 20% |
| | | | C015 | 1-135-074-21 | TANTAL. CHIP 0.47MF | 20% |
| | | | C016 | 1-130-491-00 | MYLAR 0.047MF | 5% |
| R201 | 1-216-085-00 | METAL CHIP | C017 | 1-124-236-00 | ELECT 47MF | 20% |
| R202 | 1-216-085-00 | METAL CHIP | C018 | 1-163-112-00 | CERAMIC CHIP 62PF | 5% |
| R203 | 1-216-115-00 | METAL CHIP | C019 | 1-163-114-00 | CERAMIC CHIP 75PF | 5% |
| R204 | 1-249-413-11 | CARBON | C020 | 1-163-103-00 | CERAMIC CHIP 27PF | 5% |
| R205 | 1-216-055-00 | METAL CHIP | C021 | 1-124-236-00 | ELECT 47MF | 20% |
| R206 | 1-216-055-00 | METAL CHIP | C022 | 1-163-106-00 | CERAMIC CHIP 36PF | 5% |
| R207 | 1-216-051-00 | METAL CHIP | C023 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% |
| R208 | 1-216-095-00 | METAL CHIP | C024 | 1-163-096-00 | CERAMIC CHIP 13PF | 5% |
| R210 | 1-216-065-00 | METAL CHIP | C025 | 1-124-462-00 | ELECT 10MF | 20% |
| R211 | 1-216-033-00 | METAL CHIP | C026 | 1-163-129-00 | CERAMIC CHIP 330PF | 5% |
| R212 | 1-216-687-11 | METAL CHIP | C027 | 1-162-816-11 | CERAMIC CHIP 180PF | 5% |
| R213 | 1-216-687-11 | METAL CHIP | C028 | 1-163-077-00 | CERAMIC CHIP 0.1MF | 5% |
| R214 | 1-216-115-00 | METAL CHIP | C029 | 1-163-077-00 | CERAMIC CHIP 0.1MF | 5% |
| R215 | 1-249-413-11 | CARBON | C030 | 1-163-139-00 | CERAMIC CHIP 820PF | 5% |
| R216 | 1-216-055-00 | METAL CHIP | | | | |
| R217 | 1-216-055-00 | METAL CHIP | | | | |
| R218 | 1-216-051-00 | METAL CHIP | | | | |
| R219 | 1-216-699-11 | METAL CHIP | | | | |
| R220 | 1-216-679-11 | METAL CHIP | | | | |

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| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|--------|---------------|---------------------------|--------|--------|---------------|-----------------------|--------|
| C031 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% | L005 | 1-408-788-21 | INDUCTOR CHIP 82UH | |
| C032 | 1-124-255-00 | ELECT | 20% | L006 | 1-408-775-41 | INDUCTOR CHIP 6.8UH | |
| C033 | 1-123-332-00 | ELECT | 20% | L007 | 1-408-776-00 | INDUCTOR CHIP 8.2UH | |
| C035 | 1-124-245-00 | ELECT | 20% | L008 | 1-408-779-21 | INDUCTOR CHIP 100UH | |
| C036 | 1-124-236-00 | ELECT | 20% | | VARIABLE COIL | | |
| C037 | 1-124-236-00 | ELECT | 20% | LV001 | 1-408-512-00 | COIL (VARIABLE) 10UH | |
| C038 | 1-124-257-00 | ELECT | 20% | LV002 | 1-408-530-00 | COIL (VARIABLE) 3.3UH | |
| C039 | 1-163-075-00 | CERAMIC CHIP 0.047MF | | LV003 | 1-408-512-00 | COIL (VARIABLE) 10UH | |
| C040 | 1-163-133-00 | CERAMIC CHIP 470PF | 5% | | TRANSISTOR | | |
| C041 | 1-163-077-00 | CERAMIC CHIP 0.1MF | | Q001 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| C042 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% | Q002 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| C043 | 1-163-021-00 | CERAMIC CHIP 0.01MF | | Q003 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| C044 | 1-124-255-00 | ELECT | 20% | Q004 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| C045 | 1-135-070-00 | TANTAL. CHIP 0.1MF | 20% | Q005 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| C046 | 1-124-240-00 | ELECT | 20% | Q006 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | |
| C047 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 5% | Q007 | 8-729-901-04 | TRANSISTOR DTAL14EK | |
| C048 | 1-163-063-00 | CERAMIC CHIP 0.022MF | | Q008 | 8-729-100-67 | TRANSISTOR 2SC1623 | |
| C049 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 5% | Q009 | 8-729-100-67 | TRANSISTOR 2SC1623 | |
| C050 | 1-163-063-00 | CERAMIC CHIP 0.022MF | | Q010 | 8-729-100-67 | TRANSISTOR 2SC1623 | |
| C051 | 1-163-075-00 | CERAMIC CHIP 0.047MF | | Q012 | 8-729-100-67 | TRANSISTOR 2SC1623 | |
| C053 | 1-163-075-00 | CERAMIC CHIP 0.047MF | | | RESISTOR | | |
| C054 | 1-163-113-00 | CERAMIC CHIP 68PF | 5% | R001 | 1-216-093-00 | METAL CHIP 68K 5% | 1/10W |
| C055 | 1-163-075-00 | CERAMIC CHIP 0.047MF | | R002 | 1-216-079-00 | METAL CHIP 18K 5% | 1/10W |
| C056 | 1-163-075-00 | CERAMIC CHIP 0.047MF | | R003 | 1-216-059-00 | METAL CHIP 2.2K 5% | 1/10W |
| C057 | 1-163-075-00 | CERAMIC CHIP 0.047MF | | R004 | 1-216-043-00 | METAL CHIP 560 5% | 1/10W |
| C101 | 1-126-103-11 | ELECT | 20% | R005 | 1-216-053-00 | METAL CHIP 1.5K 5% | 1/10W |
| | | CONNECTOR | | R006 | 1-216-129-00 | METAL CHIP 2.2M 5% | 1/10W |
| CN001 | *1-564-014-00 | PIN, CONNECTOR 4P | | R007 | 1-216-085-00 | METAL CHIP 33K 5% | 1/10W |
| CN002 | *1-564-014-00 | PIN, CONNECTOR 4P | | R008 | 1-216-071-00 | METAL CHIP 8.2K 5% | 1/10W |
| | | TRIMMER | | R009 | 1-216-063-00 | METAL CHIP 3.9K 5% | 1/10W |
| CV001 | 1-141-227-00 | CAP, CERAMIC TRIMMER 20PF | | R010 | 1-216-095-00 | METAL CHIP 82K 5% | 1/10W |
| | | DIODE | | R011 | 1-216-075-00 | METAL CHIP 12K 5% | 1/10W |
| D001 | 8-719-109-97 | DIODE RD6.8ESB2 | | R012 | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W |
| D002 | 8-719-911-06 | DIODE 1SS106 | | R013 | 1-216-067-00 | METAL CHIP 5.6K 5% | 1/10W |
| | | DELAY LINE | | R014 | 1-216-127-11 | METAL CHIP 1.8M 5% | 1/10W |
| DL001 | 1-415-313-00 | DELAY LINE (1H) | | R015 | 1-216-001-00 | METAL CHIP 10 5% | 1/10W |
| | | IC | | R016 | 1-216-003-11 | METAL CHIP 12 5% | 1/10W |
| IC001 | 8-759-933-40 | IC HD14538BP | | R017 | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W |
| IC002 | 8-759-933-74 | IC TDA2594 | | R018 | 1-216-081-00 | METAL CHIP 22K 5% | 1/10W |
| IC003 | 8-759-345-38 | IC TC4538BP | | R019 | 1-216-059-00 | METAL CHIP 2.7K 5% | 1/10W |
| IC004 | 8-752-006-10 | IC CX20061 | | R020 | 1-215-453-00 | METAL 22K 1% | 1/6W |
| | | COIL | | R021 | 1-216-081-00 | METAL CHIP 22K 5% | 1/10W |
| L001 | 1-408-787-00 | INDUCTOR CHIP 68UH | | R022 | 1-216-083-00 | METAL CHIP 27K 5% | 1/10W |
| L002 | 1-408-789-21 | INDUCTOR CHIP 100UH | | R023 | 1-216-079-00 | METAL CHIP 18K 5% | 1/10W |
| L003 | 1-408-786-21 | INDUCTOR CHIP 56UH | | R024 | 1-216-041-00 | METAL CHIP 470 5% | 1/10W |
| L004 | 1-408-786-21 | INDUCTOR CHIP 56UH | | R025 | 1-216-043-00 | METAL CHIP 560 5% | 1/10W |
| | | | | R026 | 1-216-049-00 | METAL CHIP 1K 5% | 1/10W |
| | | | | R027 | 1-216-049-00 | METAL CHIP 1K 5% | 1/10W |
| | | | | R028 | 1-216-085-00 | METAL CHIP 33K 5% | 1/10W |
| | | | | R029 | 1-216-083-00 | METAL CHIP 27K 5% | 1/10W |

When indicating parts by reference number, please include the board name.

TC-3

LD-1

MS-4

LS-9

MJ-11

| Ref.No | Part No. | Description | Remark | Ref.No | Part No. | Description | Remark |
|--------|--------------|----------------------------|---------------|---------------|-----------------------------------|-------------|----------|
| R030 | 1-216-045-00 | METAL CHIP | 680 5% 1/10W | A-7070-025-A | MS-4 BOARD, COMPLETE | | |
| R031 | 1-216-045-00 | METAL CHIP | 680 5% 1/10W | | ***** | ***** | |
| R032 | 1-216-049-00 | METAL CHIP | 1K 5% 1/10W | | | | |
| R033 | 1-216-049-00 | METAL CHIP | 1K 5% 1/10W | 1-163-038-00 | CERAMIC CHIP 0.1MF | | 25V |
| R034 | 1-216-067-00 | METAL CHIP | 5.6K 5% 1/10W | *1-564-671-31 | PIN, CONNECTOR (HOOK TYPE) | | |
| R035 | 1-216-061-00 | METAL CHIP | 3.3K 5% 1/10W | | ***** | ***** | ***** |
| R036 | 1-216-041-00 | METAL CHIP | 470 5% 1/10W | LS-9 BOARD | | | |
| R037 | 1-216-041-00 | METAL CHIP | 470 5% 1/10W | | ***** | ***** | |
| R038 | 1-216-039-00 | METAL CHIP | 390 5% 1/10W | | | | |
| R039 | 1-216-041-00 | METAL CHIP | 470 5% 1/10W | | | | |
| R040 | 1-216-045-00 | METAL CHIP | 680 5% 1/10W | *1-564-671-11 | PIN, CONNECTOR (HOOK TYPE) | | |
| R041 | 1-216-057-00 | METAL CHIP | 2.2K 5% 1/10W | | ***** | ***** | ***** |
| R042 | 1-216-049-00 | METAL CHIP | 1K 5% 1/10W | *1-621-982-13 | MJ-11 BOARD | | |
| R043 | 1-216-037-00 | METAL CHIP | 330 5% 1/10W | | ***** | ***** | |
| R044 | 1-216-049-00 | METAL CHIP | 1K 5% 1/10W | | | | |
| R045 | 1-216-057-00 | METAL CHIP | 2.2K 5% 1/10W | | CAPACITOR | | |
| R046 | 1-216-057-00 | METAL CHIP | 2.2K 5% 1/10W | C725 | 1-124-462-00 ELECT | 10MF | 20% 16V |
| R047 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | C726 | 1-124-462-00 ELECT | 10MF | 20% 16V |
| R048 | 1-216-049-00 | METAL CHIP | 1K 5% 1/10W | C741 | 1-124-462-00 ELECT | 10MF | 20% 16V |
| R049 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | C742 | 1-124-225-00 ELECT | 100MF | 20% 6.3V |
| R050 | 1-216-089-00 | METAL CHIP | 47K 5% 1/10W | C743 | 1-163-141-00 CERAMIC CHIP 0.001MF | 10% 50V | |
| R051 | 1-216-089-00 | METAL CHIP | 47K 5% 1/10W | C744 | 1-163-121-00 CERAMIC CHIP 150PF | 5% 50V | |
| R052 | 1-216-057-00 | METAL CHIP | 2.2K 5% 1/10W | | DIODE | | |
| R053 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | D101 | 8-719-109-60 DIODE RD2.7ESB2 | | |
| R054 | 1-216-043-00 | METAL CHIP | 560 5% 1/10W | | IC | | |
| R055 | 1-216-053-00 | METAL CHIP | 1.5K 5% 1/10W | IC721 | 8-759-106-02 IC UPC4570G2 | | |
| R056 | 1-216-039-00 | METAL CHIP | 390 5% 1/10W | | JACK | | |
| R057 | 1-216-039-00 | METAL CHIP | 390 5% 1/10W | J401 | 1-507-899-00 JACK (SMALL TYPE) | | |
| R058 | 1-216-073-00 | METAL CHIP | 10K 5% 1/10W | | JUMPER RESISTOR | | |
| R059 | 1-216-091-00 | METAL CHIP | 56K 5% 1/10W | JR053 | 1-216-295-00 METAL CHIP | 0 5% | 1/10W |
| RV001 | 1-230-871-11 | RES, ADJ, METAL GLAZE 22K | | JR054 | 1-216-295-00 METAL CHIP | 0 5% | 1/10W |
| RV002 | 1-230-873-11 | RES, ADJ, METAL GLAZE 47K | | JR055 | 1-216-295-00 METAL CHIP | 0 5% | 1/10W |
| RV003 | 1-230-871-11 | RES, ADJ, METAL GLAZE 22K | | JR056 | 1-216-295-00 METAL CHIP | 0 5% | 1/10W |
| RV004 | 1-230-867-11 | RES, ADJ, METAL GLAZE 1K | | JR057 | 1-216-295-00 METAL CHIP | 0 5% | 1/10W |
| RV005 | 1-230-867-11 | RES, ADJ, METAL GLAZE 1K | | JR099 | 1-216-296-00 METAL CHIP | 0 5% | 1/8W |
| RV006 | 1-230-868-11 | RES, ADJ, METAL GLAZE 2.2K | | | RESISTOR | | |
| RV007 | 1-230-867-11 | RES, ADJ, METAL GLAZE 1K | | R710 | 1-216-061-00 METAL CHIP | 3.3K 5% | 1/10W |
| X001 | 1-567-504-11 | CRYSTAL, OSC (4.43MHz) | | R732 | 1-216-081-00 METAL CHIP | 22K 5% | 1/10W |
| | | | | R733 | 1-216-025-00 METAL CHIP | 100 5% | 1/10W |
| | | | | R735 | 1-216-083-00 METAL CHIP | 27K 5% | 1/10W |
| | | | | R741 | 1-216-105-00 METAL CHIP | 220K 5% | 1/10W |
| | | | | R742 | 1-216-081-00 METAL CHIP | 22K 5% | 1/10W |
| | | | | R743 | 1-216-025-00 METAL CHIP | 100 5% | 1/10W |
| | | | | R744 | 1-216-025-00 METAL CHIP | 100 5% | 1/10W |
| | | | | R745 | 1-216-083-00 METAL CHIP | 27K 5% | 1/10W |
| D001 | 8-719-928-54 | DIODE GL-450S | | | | | |
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When indicating parts by reference number, please include the board name.

TE-6

TE-5

DL-15

DO-1

DT-63

| Ref.No | Part No. | Description | Ref.No | Part No. | Description | Remark |
|--------|---------------|------------------------|--------|---------------|----------------------|--------------|
| | *1-621-998-11 | TE-6 BOARD ***** | | *1-621-994-11 | DT-63 BOARD ***** | |
| | *3-716-845-01 | HOLDER (LEFT), SENSOR | | 1-938-846-11 | HARNES (DD-12) | |
| | | TRANSISTOR | | | CAPACITOR | |
| Q001 | 8-729-904-10 | PT360FS | C102 | 1-126-175-11 | ELECT | 15000MF 20% |
| | | SWITCH | C103 | 1-123-334-00 | ELECT | 220MF 20% |
| S904 | 1-570-112-11 | SWITCH, LEAF | C104 | 1-123-332-00 | ELECT | 47MF 20% |
| S905 | 1-570-112-11 | SWITCH, LEAF | C105 | 1-123-332-00 | ELECT | 47MF 20% |
| | | ***** | C110 | 1-125-445-11 | DOUBLE LAYERS 0.22MF | 5.5V |
| | *1-621-997-11 | TE-5 BOARD ***** | C111 | 1-123-387-00 | ELECT | 47MF 20% |
| | *3-716-844-01 | HOLDER (RIGHT), SENSOR | C112 | 1-123-387-00 | ELECT | 47MF 20% |
| | | TRANSISTOR | C114 | 1-106-212-00 | MYLAR | 0.047MF 100V |
| Q001 | 8-729-904-10 | PT360FS | C115 | 1-123-334-00 | ELECT | 220MF 20% |
| | | SWITCH | | | CONNECTOR | |
| S903 | 1-570-112-11 | SWITCH, LEAF | CN102 | *1-560-893-00 | PIN, CONNECTOR 5P | |
| | | ***** | CN104 | *1-560-893-00 | PIN, CONNECTOR 5P | |
| | | DIODE | CN105 | *1-560-891-00 | PIN, CONNECTOR 3P | |
| D001 | 8-719-109-50 | DIODE RD2.0ESB1 | CN106 | *1-560-896-00 | PIN, CONNECTOR 8P | |
| D301 | 8-719-500-32 | DIODE D3SB10 | CN107 | *1-560-893-00 | PIN, CONNECTOR 5P | |
| | | IC | CN108 | *1-560-891-00 | PIN, CONNECTOR 3P | |
| IC001 | 8-759-803-56 | IC L7808ML | CN203 | *1-560-894-00 | PIN, CONNECTOR 6P | |
| | | TRANSISTOR | | | DIODE | |
| Q001 | 8-729-900-80 | TRANSISTOR DTC114ES | D103 | 8-719-911-19 | DIODE 1SS119 | |
| | | RESISTOR | D104 | 8-719-911-19 | DIODE 1SS119 | |
| R001 | 1-249-417-11 | CARBON 1K 5% 1/6W | D106 | 8-719-110-16 | DIODE RD10ES-B1 | |
| | | ***** | D107 | 8-719-200-02 | DIODE 10E2 | |
| | *1-621-992-12 | DO-1 BOARD ***** | D108 | 8-719-200-02 | DIODE 10E2 | |
| | | TRANSISTOR | D109 | 8-719-110-42 | DIODE RD15ES-B3 | |
| Q501 | 8-729-303-58 | TRANSISTOR 2SC3851-0 | D110 | 8-719-109-93 | DIODE RD6.2ES-B2 | |
| Q502 | 8-729-804-67 | TRANSISTOR 2SB1133-R | D111 | 8-719-107-94 | DIODE 1SS202 | |
| | | ***** | D112 | 8-719-115-21 | DIODE RD39J5B | |
| | | IC LINK | D114 | 8-719-109-98 | DIODE RD6.8ES-B3 | |
| | | IC LINK | D115 | 8-719-110-42 | DIODE RD15ESB3 | |
| | | PS101 | D116 | 8-719-110-16 | DIODE RD10ES-B1 | |
| | | PS102 | D117 | 8-719-109-82 | DIODE RD4.7ES-B3 | |
| | | PS103 | D119 | 8-719-911-19 | DIODE 1SS119 | |
| | | PS104 | | | IC LINK | |
| | | ***** | | | TRANSISTOR | |
| | | ***** | Q103 | 8-729-103-43 | TRANSISTOR 2SB734 | |
| | | ***** | Q106 | 8-729-177-32 | TRANSISTOR 2SD773 | |
| | | ***** | Q107 | 8-729-177-32 | TRANSISTOR 2SD773 | |

The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

| Ref.No | Part No. | Description | Remark |
|------------------------------------------------|---------------------------|-------------------------------------|--------------|
| RESISTOR | | | |
| R103 | 1-249-421-11 | CARBON | 2.2K 5% 1/6W |
| R104 | 1-249-421-11 | CARBON | 2.2K 5% 1/6W |
| R105 | 1-246-449-25 | CARBON | 100 5% 1/4W |
| R107 | 1-249-425-11 | CARBON | 4.7K 5% 1/6W |
| R108 | 1-249-434-11 | CARBON | 27K 5% 1/6W |
| R109 | 1-249-441-11 | CARBON | 100K 5% 1/6W |
| R111 | 1-249-431-11 | CARBON | 15K 5% 1/6W |
| R112 | 1-249-422-11 | CARBON | 2.7K 5% 1/6W |
| R113 | 1-249-416-11 | CARBON | 820 5% 1/6W |
| ***** | | | |
| MISCELLANEOUS | | | |
| ***** | | | |
| A 1-464-829-11 MODULATOR, RF (RFU-867) | | | |
| A 1-534-817-XX CORD, POWER | | | |
| 1-535-535-11 TERMINAL, SHAFT GROUND | | | |
| *1-555-110-00 CABLE, PIN | | | |
| C901 | 1-161-057-00 | CAP, CERAMIC 0.033MF | |
| M901 | A-7040-134-A | MOTOR SUB ASSY, REEL | |
| M903 | 8-835-138-01 | MOTOR, DC (DNR-5301A) (CONTROL) | |
| M904 | A-7040-065-A | MOTOR ASSY, L (LOADING) | |
| M905 | A-7090-661-A | MOTOR BLOCK ASSY, LS (LINEAR SKATE) | |
| M906 | 8-835-247-01 | MOTOR, DC BHF-2804D (CAPSTAN) | |
| PM901 A 1-454-377-31 SOLENOID, PLUNGER (BRAKE) | | | |
| S901 | 1-554-942-11 | SWITCH, PUSH (RECOG R) | |
| S902 | 1-554-942-11 | SWITCH, PUSH (RECOG L) | |
| T401 | A 1-448-836-11 | TRANSFORMER, POWER | |
| ***** | | | |
| ACCESSORIES AND PACKING MATERIALS | | | |
| ***** | | | |
| Part No. Description Remark | | | |
| A-6767-550-A | COMMANDER ASSY | | |
| 1-551-513-00 | CABLE, COAXIAL ASSY | | |
| 1-551-734-11 | CORD, CONNECTION | | |
| 1-534-049-31 | CORD, CONNECTION (RK-74H) | | |
| *3-677-503-00 | SHEET, PROTECTION | | |
| 3-695-308-01 | DRIVER, VOLUME | | |
| *3-713-409-11 | CUSHION (UPPER) | | |
| *3-713-410-01 | CUSHION (LOWER) | | |
| *3-716-990-01 | INDIVIDUAL CARTON | | |
| 3-765-383-11 | MANUAL, INSTRUCTION | | |
| ***** | | | |

The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SECTION 7 MECHANISM ADJUSTMENT

7-1. MECHANICAL CHECK, ADJUSTMENT AND PREPARATIONS FOR REPLACEMENT

Note: Regarding the removal procedures of the cabinet and board, see Section 2.

7-1-1. Cassette Compartment Assembly And Operation Without Tape Inserted

Note: The set will not operate if there is a strong light source near it.

1. Method to loading (See Fig. 7-1)

- 1) Remove the front panel and covers (upper, lower) according to item Section 2, 2-1 and 2-2.
- 2) Connect a power supply and press the power button to turn on.
- 3) Press the EJECT button.
- 4) Disconnect power supply.
- 5) According to item Section 2, 2-14, remove the cassette compartment assembly.
- 6) Place tape over the pin coming out of the push switch ①.
- 7) Place a cap ② over the LED assembly.
- 8) Press the lock holder ③ in the direction of arrow A.
- 9) Short-circuit the leaf switch ④ by clip ⑤, etc.
- 10) Connect power supply and press the power button to turn on.

2. Putting into Playback State (See Fig. 7-1)

- 1) Perform the loading procedure in 1.
- 2) Place the rubber band ⑥ as shown between S reel and T reel sides.
- 3) Press the playback button, and when the T reel side starts to rotate, press the tension regulator arm assembly ⑦ in the direction of arrow B. (At this time, the tension regulator band is released and the S reel side rotates.)
- 4) Press the stop button to stop.

3. Putting into Recording State (See Fig. 7-1)

- 1) Perform the loading procedure in 1.
- 2) Place a rubber band ⑥ as shown between the S reel and T reels.
- 3) Press the recording button, and when the T reel side starts to rotate, push the tension regulator arm assembly ⑦ in the direction of arrow B. (At this time, the tension regulator band is released and the S reel side rotates.)
- 4) Press the stop button to stop.

4. Eject

- 1) Press the OPEN/CLOSE button.

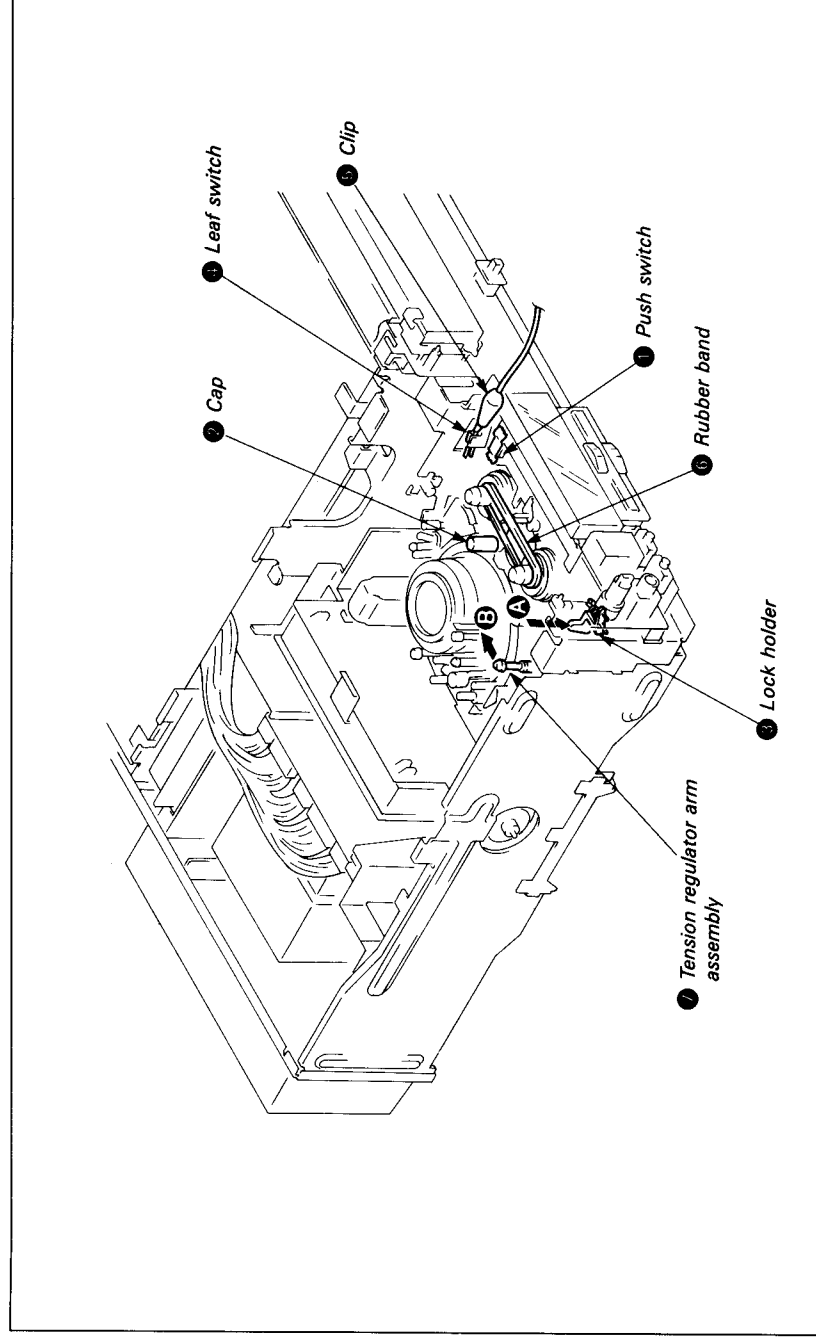


Fig. 7-1.

7-1-2. Handling of Mode Selector

1. Location of parts (External view)

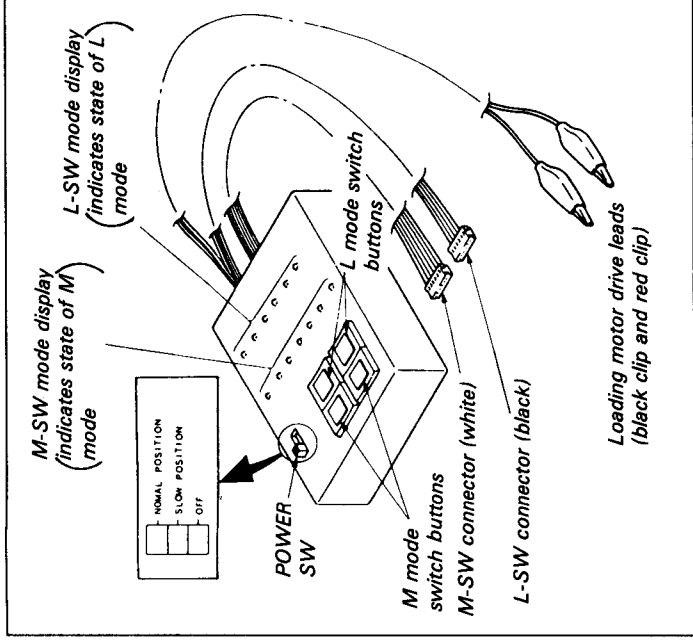


Fig. 7-2.

2. Connection (See Fig. 7-3.)

- 1) Remove the front panel and covers (upper, lower) according to item Section 2, 2-1 and 2-2.
- 2) According to item Section 2, 2-14, remove the cassette compartment assembly.
- 3) Remove the MS-4 board and LS-9 board connectors.
- 4) Insert the M-SW connector (6P connector, 6 harness, white) ① into the set MS-4 board.
- 5) Insert the L-SW connector (6P connector, 4 harness, black) ② into the set LS-9 board.
- 6) Connect the loading motor drive lead ③ red lead side to the loading motor red clip and the brown lead to the black clip.

3. Caution

- 1) When operating L-SW, be sure to set the M-SW mode to **LOADING/UNLOADING**.
- 2) When operating M-SW, be sure to set the L-SW mode to **TOP** or **END**.

4. Handling

BLANK lights up regardless of L MODE or M MODE when it is in neither mode during select.

1) L MODE

- When the L mode switch button right side is pressed continuously, the display lights up from **LOADING TOP** → **LOADING END**, in order from left to right.
- To go from **LOADING END** → **LOADING TOP**, press the left button continuously until the desired **MODE** is reached.

- In slow position, the L mode operates more slowly than for normal position.

2) M MODE

- Set L-SW to **LOADING TOP** before performing **EJECT**.
- Set L-SW to **LOADING END** to perform **FF/REW** → **RVS** or **RVS** → **FF/REW**.
- When the right M MODE switch button is pressed continuously, the display lights up from **EJECT** → **RVS** in order from left to right.
- To go from **RVS** → **EJECT**, press the left side switch button continuously until the desired **MODE** is reached.

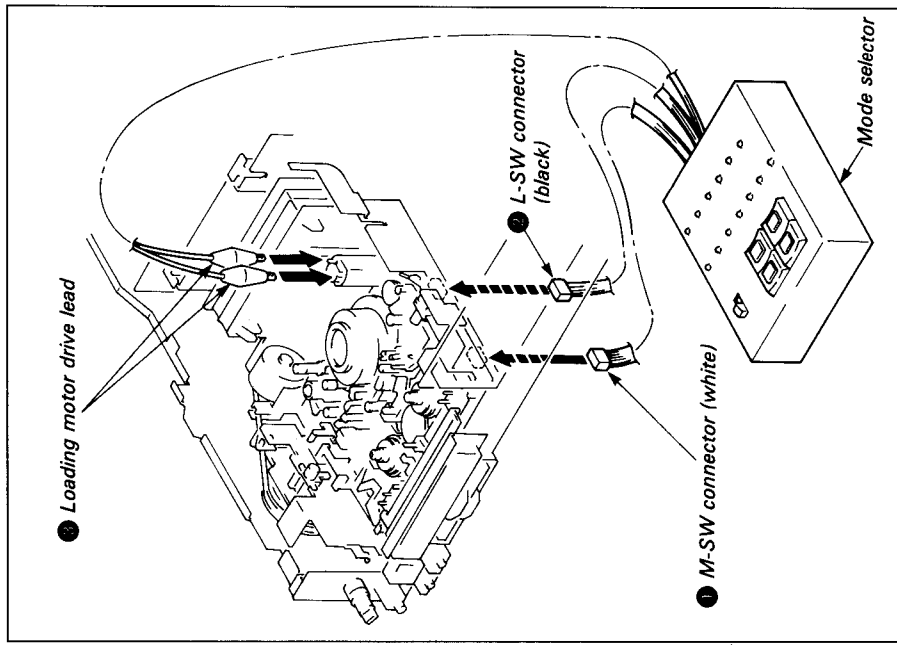
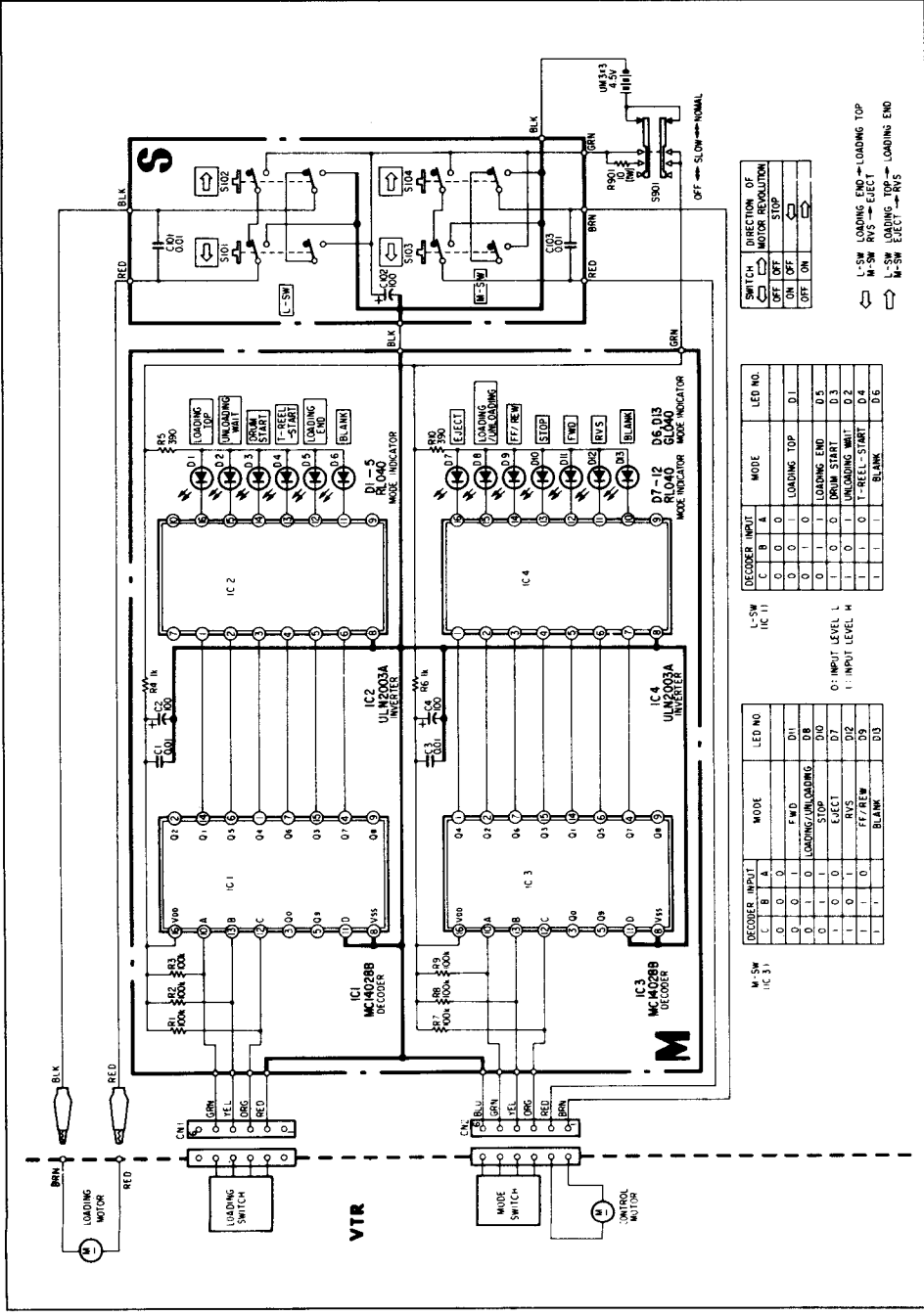


Fig. 7-3.

5. Mode Selector Schematic



6. Mode Selector Parts List

| Symbol | Part No. | Part Name |
|-------------------|--------------|------------------|
| capacitors | | |
| C1 | 1-108-579-00 | 0.01 μ F 50V |
| C2 | 1-123-333-00 | 100 μ F 24V |
| C3 | 1-108-579-00 | 0.01 μ F 50V |
| C4 | 1-123-333-00 | 100 μ F 24V |
| C101 | 1-108-579-00 | 0.01 μ F 50V |
| C102 | 1-123-333-00 | 100 μ F 24V |
| C103 | 1-108-579-00 | 0.01 μ F 50V |
| Diodes | | |
| D1 | 8-179-812-31 | RL040 |
| D2 | 8-179-812-31 | RL040 |
| D3 | 8-179-812-31 | RL040 |
| D4 | 8-179-812-31 | RL040 |
| D5 | 8-179-812-31 | RL040 |
| D6 | 8-719-812-33 | GL040 |
| D7 | 8-179-812-31 | RL040 |
| D8 | 8-179-812-31 | RL040 |
| D9 | 8-179-812-31 | RL040 |
| D10 | 8-179-812-31 | RL040 |
| D11 | 8-179-812-31 | RL040 |
| D12 | 8-179-812-31 | RL040 |
| D13 | 8-719-812-33 | GL040 |
| IC | | |
| IC1 | 8-759-240-28 | IC TC4028BP |
| IC2 | 8-759-120-03 | IC μ PA2003A |
| IC3 | 8-759-240-28 | IC TC4028BP |
| IC4 | 8-759-120-03 | IC μ PA2003A |
| resistor | | |
| R1 | 1-247-179-00 | 100K 1/4W |
| R2 | 1-247-179-00 | 100K 1/4W |
| R3 | 1-247-179-00 | 100K 1/4W |
| R4 | 1-247-131-00 | 1K 1/4W |
| R5 | 1-247-121-00 | 390 1/4W |
| R6 | 1-247-131-00 | 1K 1/4W |
| R7 | 1-247-179-00 | 100K 1/4W |
| R8 | 1-247-179-00 | 100K 1/4W |
| R9 | 1-247-179-00 | 100K 1/4W |
| R10 | 1-247-121-00 | 390 1/4W |
| R901 | 1-214-594-00 | metal film 10 1W |

7-2. PERIODIC CHECK AND MAINTENANCE

Please perform the following periodic checks and maintenance in order to obtain optimum set function and performance, and to keep the mechanism and tape in good condition. Also, perform the maintenance below after repair, regardless of the length of time the set has been used by the user.

7-2-1. Cleaning of Rotary Drum Assembly

- 1) Press a chamois cloth (Ref. No. J-2) soaked in cleaning fluid (Ref. No. J-1) lightly against the rotary drum assembly, and slowly rotate the rotary upper drum assembly counterclockwise by finger to clean.

Note: Do not use the power supply to rotate the motor, and do not rotate the drum clockwise by finger.

Also, there is a danger of damaging the head tip if the chamois cloth is moved vertically relative to the head tip, so please follow the instruction above for cleaning.

7-2-2. Cleaning of Tape Path (See Fig. 7-4)

- 1) Place the cassette compartment assembly in EJECT state, and clean the tape path (No. 1 ~ No. 11 guides, capstan shaft, pinch roller) with a chamois cloth soaked in cleaning fluid.

7-2-3. Cleaning of Drive System

- 1) Clean the drive system (timing belt, surface of reel tables) with a chamois cloth soaked in cleaning fluid.

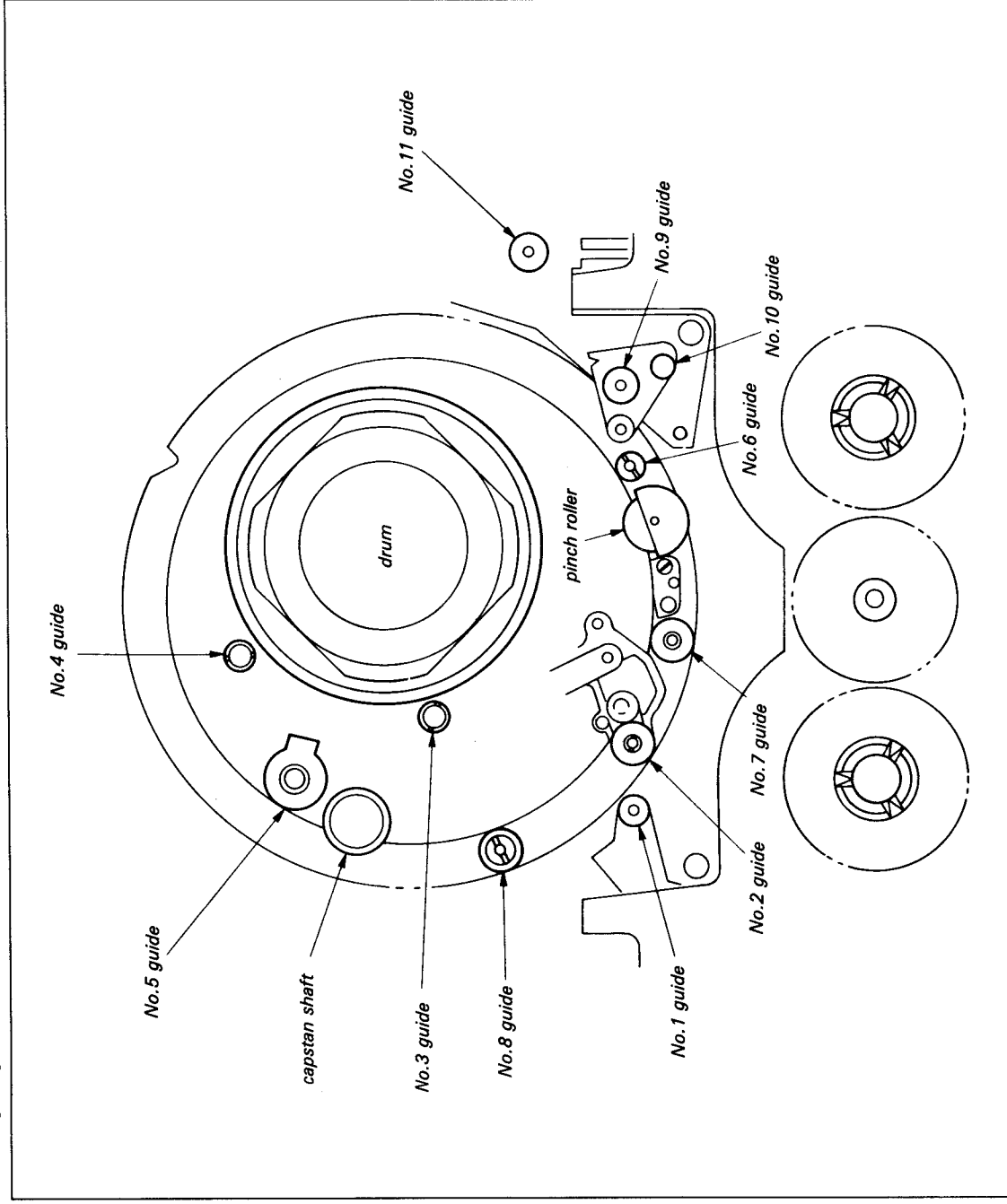


Fig. 7-4.

7-2-4. Periodic Check

Perform following according to number of hours of use.

○Cleaning ◎Oiling ★Replacement ☆Checking

| Location | | Hours of Use (H) | | | | | | | | | | Notes |
|-------------------|-------------------------------------------------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------------------------------------------------|
| | | 500 | 1,000 | 1,500 | 2,000 | 2,500 | 3,000 | 3,500 | 4,000 | 4,500 | 5,000 | |
| Tape Path | Cleaning of tape path surface | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Be careful of oil |
| | Cleaning and degaussing of rotary drum assembly | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Be careful of oil |
| Drive System | L motor belt | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ★ | ○ | ○ | 3-686-546-01 Replace here, or every two years. |
| | Plunger solenoid | — | — | — | ○ | — | — | — | ○ | — | — | 1-454-377-31 |
| | Capstan shaft bearing | — | ◎ | — | ◎ | — | ◎ | — | ◎ | — | ◎ | Be careful not to get oil on the tape path surface. |
| | Loading motor | — | ☆ | — | ☆ | — | ☆ | — | ☆ | — | ☆ | A-7040-065-A |
| | Control motor | — | ☆ | — | ☆ | — | ☆ | — | ☆ | — | ☆ | 8-835-138-01 |
| | LS motor belt | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ★ | ○ | ○ | 3-713-670-01 |
| | LS motor | — | ☆ | — | ☆ | — | ☆ | — | ☆ | — | ☆ | A-7090-661-A |
| | Reel motor | — | ☆ | — | ☆ | — | ☆ | — | ☆ | — | ☆ | A-7040-134-A |
| | Abnormal noise | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | |
| | Back tension measurement | — | ☆ | — | ☆ | — | ☆ | — | ☆ | — | ☆ | |
| Performance Check | Brake system | — | ☆ | — | ☆ | — | ☆ | — | ☆ | — | ☆ | |
| | FWD, RVS torque measurement | — | ☆ | — | ☆ | — | ☆ | — | ☆ | — | ☆ | |

Note: When performing an overhaul, refer to the items above when replacing parts.

Note: Sony Oil

- Be sure to use Sony Oil. (There is a danger of trouble occurring if a different viscosity is used.)

Sony Oil: Parts No. 7-661-018-01 (Mitsubishi)

Diamond oil Hydrofluid EP56)

- Be sure to use clean oil when lubricating the shaft bearing, because there is a danger of wear and burning if dirty oil is used.

- One drop of oil means the amount which sticks to a 2mm diameter rod, as shown in Fig. 7-5.

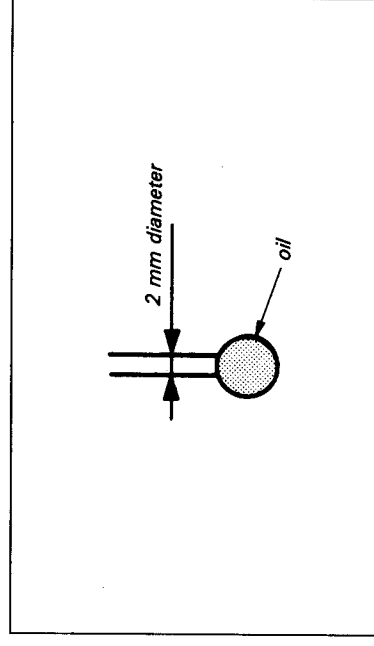



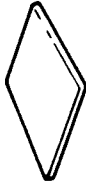

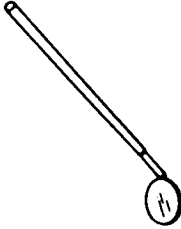
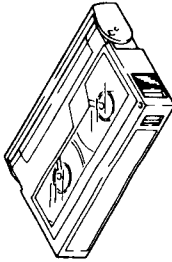
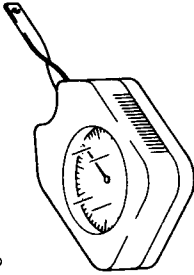
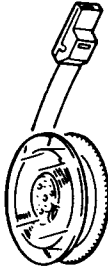
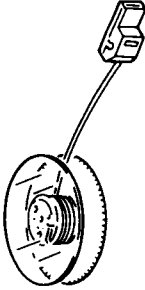
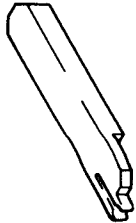


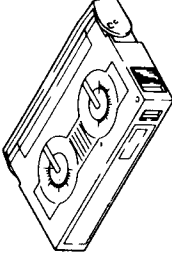
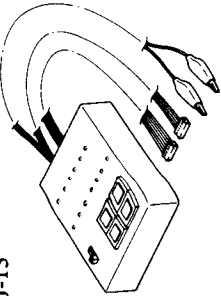
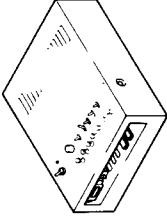
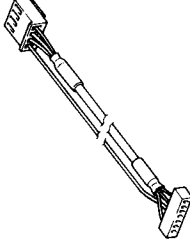
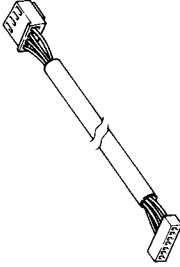
Fig. 7-5.

7-2-5. Service Jig Table

| Ref. No. | Name | Part No. | Jig | Use, Notes |
|----------|---------------------------------------|--------------------------------------------|---------|-----------------------|
| J-1 | Cleaning fluid | Y-2031-001-1 | | |
| J-2 | Chamois cloth | 2-034-697-00 | | |
| J-3 | Head degausser | Commercially sold | | |
| J-4 | Small adjustment mirror, spare mirror | J-6080-029-A J-6080-030-1 | SL-5052 | Tape path |
| J-5 | Alignment tape (WR5-1C) | 8-967-995-06 | | Tape path |
| J-6 | Dial tension gauge | J-6080-827-A | | torque measurement |
| J-7 | Tension measurement reel | J-6080-831-A | | with $\phi 30$ tape |
| J-8 | Tension measurement reel | J-6080-832-A | | with $\phi 16$ string |
| J-9 | No. 10 gear phase jig | J-6080-823-A | GD-2047 | |
| J-10 | Rotary drum jig | (packed with the repair rotary upper drum) | | |
| J-11 | No. 6 guide lock jig | J-6080-826-A | | |
| J-12 | FWD, RVS take-up torque cassette | J-6080-824-A | GD-2089 | |
| J-13 | Mode selector | J-6080-825-A | | for all models |
| J-14 | TRACK SHIFT & MONITOR JIG | J-6080-851-A | | Tape path |
| J-15 | RF/SWP connector | J-6080-883-A | | Tape path |
| J-16 | CTL connector | J-6080-884-A | | Tape path |

Other equipment: Oscilloscope

Analog tester (20k Ω)

| | | | | | | | |
|------|---------------------------------------------------------------------------------------|-------------------------------------------------|--------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|
| J-1 |  | J-2 |  | J-3 |  | J-4 |  |
| J-5 |  | J-6 |  | J-7 |  | J-8 |  |
| J-9 |  | J-10 (Packed with repair use rotary upper drum) |  | J-11 |  | J-12 |  |
| J-13 |  | J-14 |  | J-15 |  | J-16 |  |

7-3. MECHANICAL CHECK, ADJUSTMENT AND REPLACEMENT

Note: Use the mode selector (Ref. No. J-13) for this mechanical check, adjustment and replacement.
The mode inside the ☐ is the mode set by pressing the mode selector button.

7-3-1. S Reel Table Assembly (See Fig. 7-6.)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Set to **FF/REW** mode.
- 3) Remove screw ① and reel table stopper ②.
- 4) Remove the S reel table assembly ③.

Note: Be sure to hold the upper reel hook when removing.

2. Mounting

- 1) Place a half drop of oil on the spindle ④ upper surface.
- 2) Move the S main brake assembly, ⑤ in the direction of arrow.
- 3) Mount the S reel table assembly ③, being careful not to hit the tension regulator band assembly ⑥.
- 4) Mount the reel table stopper ② and tighten with screw ①.
- 5) Set to **LOADING/UNLOADING** mode.
- 6) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14, in reverse.

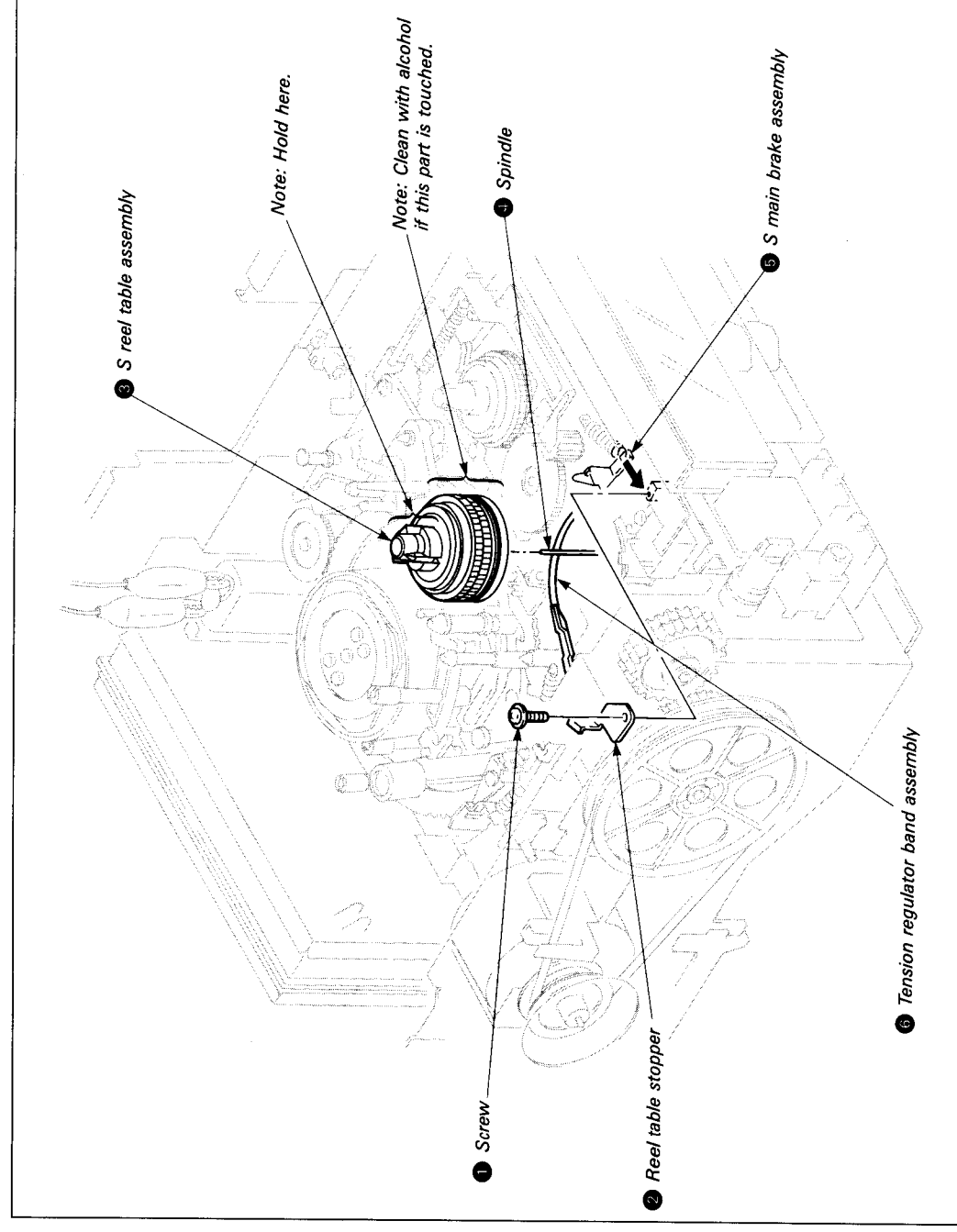


Fig. 7-6.

7-3-2. T Reel Table Assembly (See Fig. 7-7.)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Set to **[UNLOADING WAIT]** mode.
- 3) Place the spring ② on the T.S brake assembly ① on the hook on the lock slider assembly.
- 4) Remove the stopper washer ③ and the T soft brake assembly ④.
- 5) Set to **[EJECT]** mode.
- 6) Move drive gear (B) assembly ⑤ in the direction of arrow.
- 7) Remove T reel table assembly ⑥.

Note: Be sure to hold the upper reel hook when removing.

2. Mounting

- 1) Place a half drop of oil on the spindle ⑦ upper surface.
- 2) Move the drive gear (B) assembly ⑤ in the direction of arrow. (Check **[EJECT]** mode.)
- 3) Mount the T reel table assembly ⑥.
- 4) Mount the T soft brake assembly ④ and the stopper washer ③.
- 5) Place the spring ② on the T.S brake assembly ① hook.
- 6) Set to **[LOADING TOP]**, **[LOADING/UNLOADING]** mode.
- 7) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

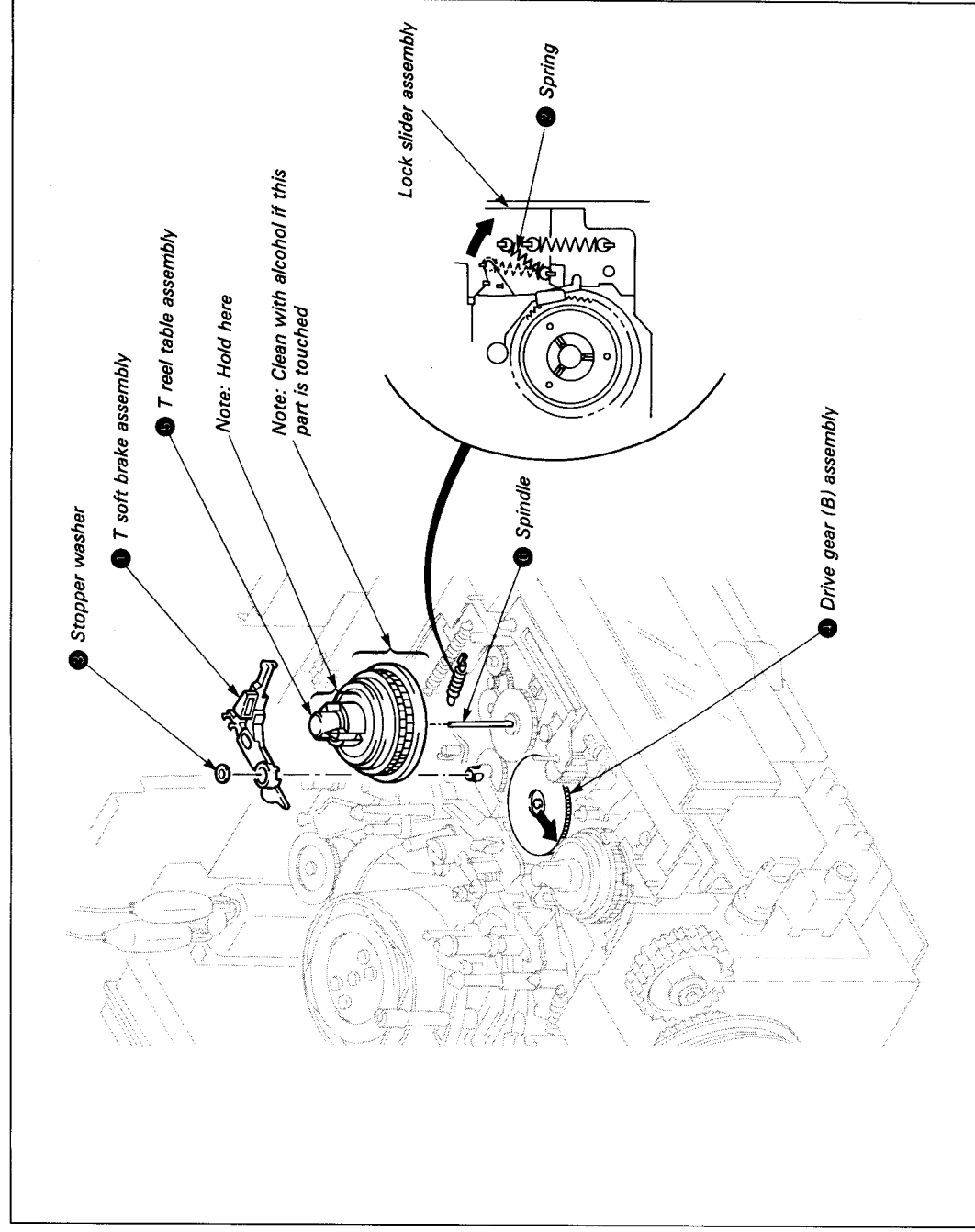


Fig. 7-7.

7-3-3. Pinch Press Arm Assembly (See Fig. 7-8)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Place the spring ① on the pinch press arm assembly ②.
- 3) Remove the stopper washer ③ and the pinch press arm assembly ④.

2. Mounting

- 1) Place a half drop of oil on shaft ⑤.
- 2) Mount the pinch press arm assembly ② and the stopper washer ③.
- 3) Place the spring ① on the tension regulator spring hook assembly ⑥.
- 4) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14, in reverse.

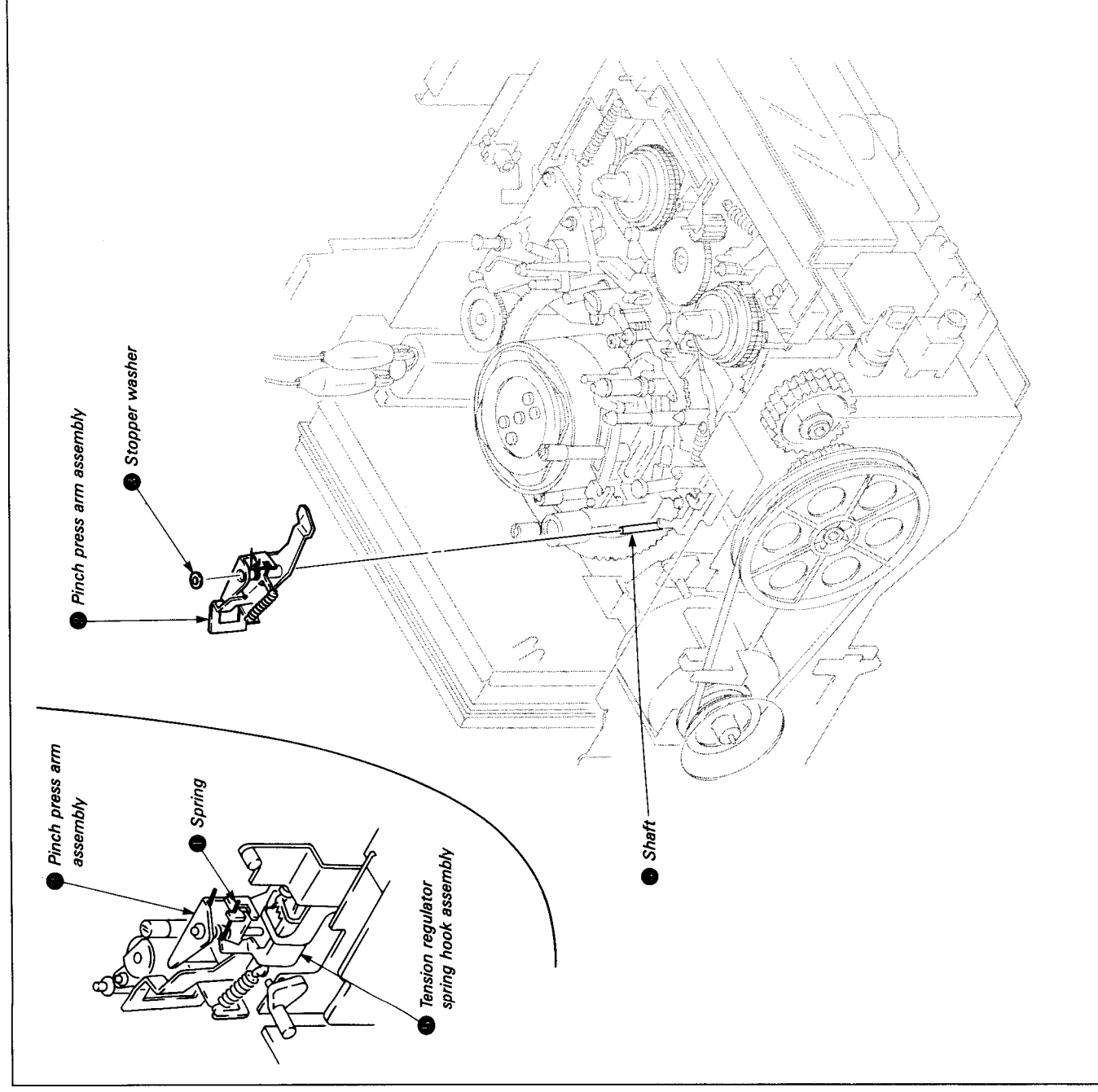


Fig. 7-8.

7-3-4. Tension Regulator Arm Assembly (See Fig. 7-9.)

1. Removal

- 1) Remove the mechanism as described in item Section 2, 2-15.
- 2) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 3) Remove the LS motor belt ①.
- 4) Remove the Four screws ②, and then move the Front base ③ in the direction of arrow.
- 5) Change the spring position as described in 7-3-3. 1. Removal, 2). (See Fig. 7-8.)
- 6) Remove tension spring ④. (Note its position.)
- 7) Remove screw ⑤ and the tension regulator spring hook assembly ⑥.
- 8) Set to **FF/REW** mode.
- 9) Remove the tension regulator band assembly hook ⑦.
- 10) Remove the tension regulator arm assembly ⑧.

2. Mounting

- 1) Place a half drop of oil on the spindle ①.
- 2) Mount the tension regulator arm assembly ⑧, placing the tension regulator load arm assembly pin ⑨ in the tension regulator arm assembly ⑧ cam groove (on the back).
- 3) Mount the tension regulator band assembly hook ⑦. (Do not touch the band or change its shape.)
- 4) Set to **LOADING/UNLOADING** mode.
- 5) Mount the tension regulator spring hook assembly ⑥ and tighten with screw ⑤.
- 6) Replace tension spring ④ in its original position and lock the screws.
- 7) Position the spring according to item 7-3-3, 2. Mounting, 3). (See Fig. 7-8.)
- 8) Mount the Front base ③, and then tighten with four screws ②.
- 9) Mount the LS motor belt ①.
- 10) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.
- 11) Mount the mechanism by following the procedure in Section 2, 2-15. in reverse.

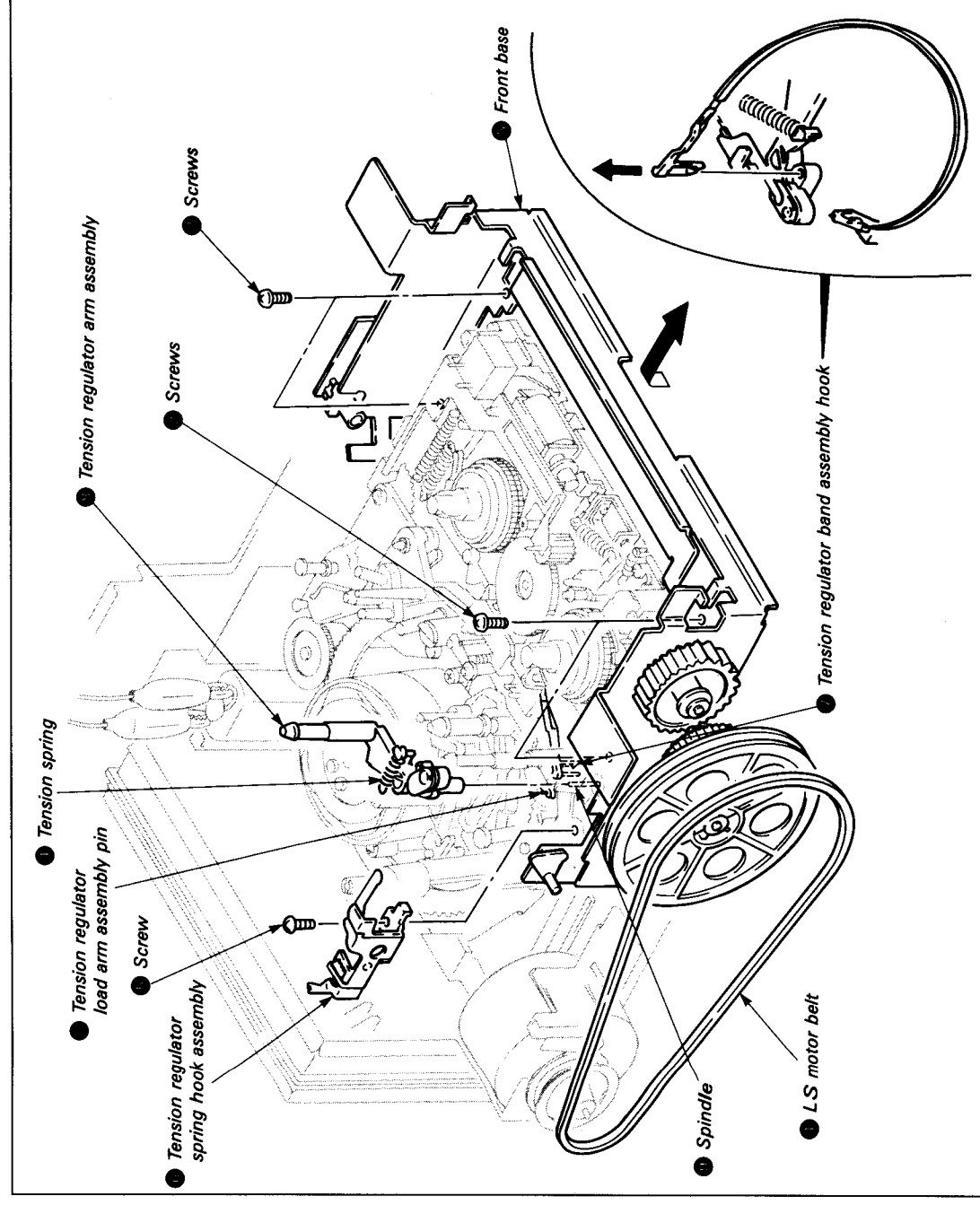


Fig. 7-9.

7-3-5. Tension Regulator Band Assembly

(See Fig. 7-10.)

1. Removal

- 1) Remove the S reel table assembly according to item 7-3-1, 1. Removal. (See Fig. 7-6.)
- 2) Remove the band arm hook ❶.
- 3) Remove hook ❷ and the tension regulator band assembly ❸.

2. Mounting

- 1) Mount the tension regulator band assembly ❸. (Do not touch the band or change its shape.)
- 2) Fit on the band arm hook ❶.
- 3) Mount the S reel table assembly according to 7-3-1, 2. Mounting. (See Fig. 7-6.)
- 4) Perform 7-3-21. FWD Back Tension Adjustment.

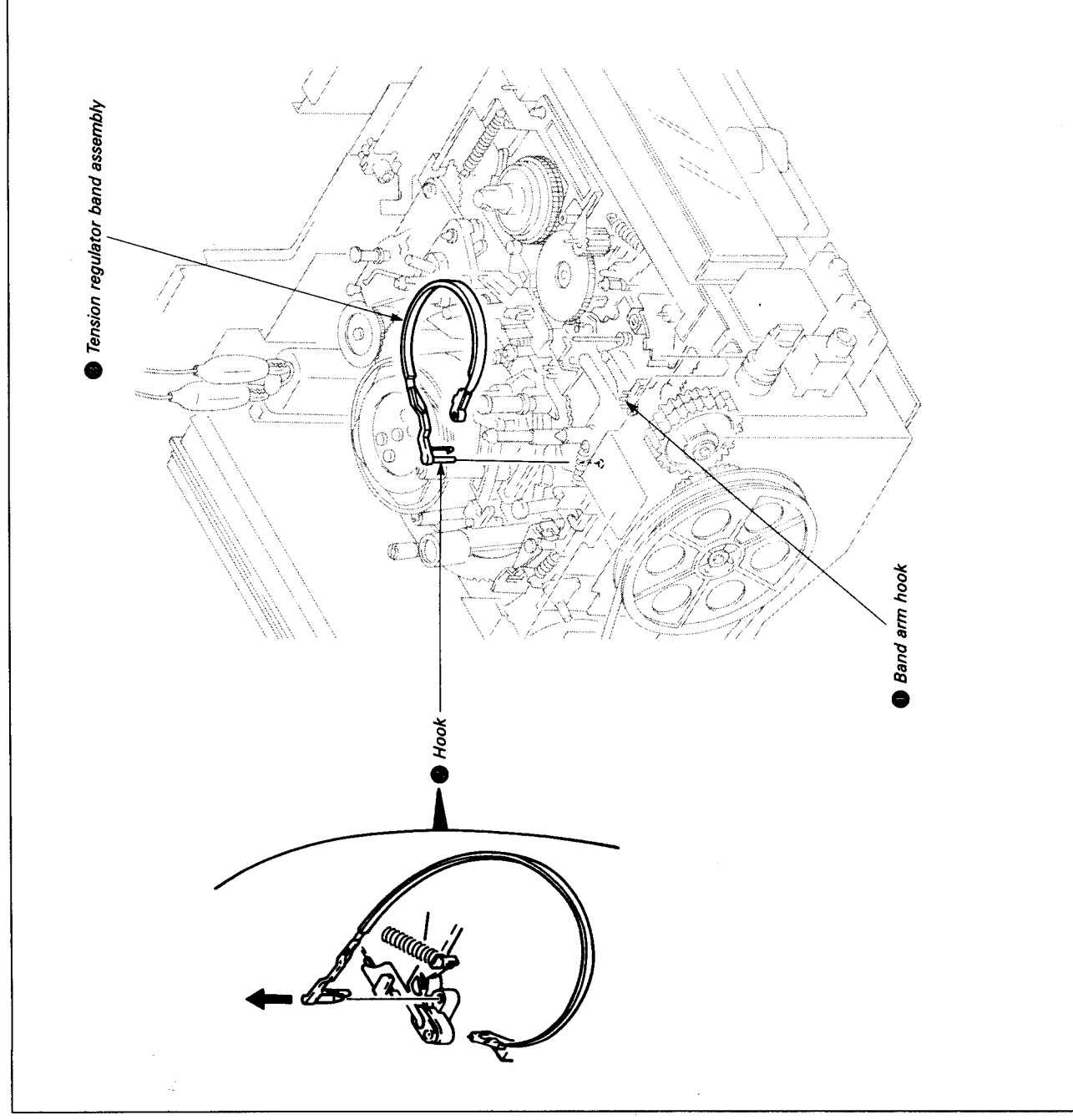


Fig. 7-10.

7-3-6. Loading Motor Assembly (See Fig. 7-11.)

1. Removal

- 1) Connect a power supply and press the push button to turn on.
- 2) Press the OPEN/CLOSE button.

Note: Disconnect the power supply after being set to EJECT state.

- 3) Open the SP-2 board ❶ according to item Section 2, 2-6.
- 4) Remove connector ❷ from SP-2 board ❶.
- 5) Remove L motor belt ❸.
- 6) Remove the two screws ❹.
- 7) Remove the loading motor assembly ❺.

2. Mounting

- 1) Mount the loading motor assembly ❺ and tighten the two screws ❹.
- 2) Mount L motor belt ❸.
- 3) Connect connector ❷ to SP-2 board ❶.
- 4) Mount SP-2 board ❶ by following the procedure in item Section 2, 2-6, in reverse.

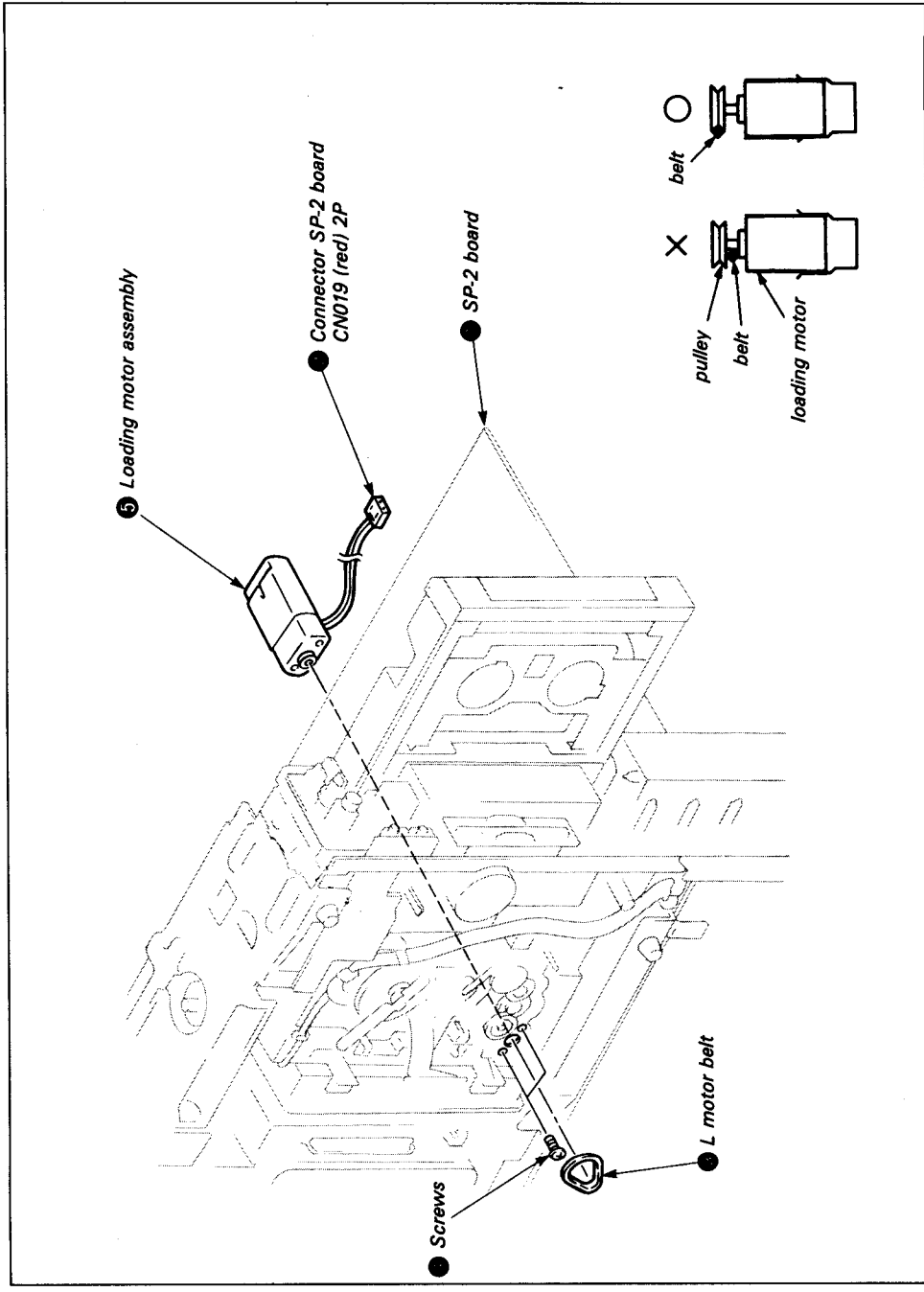


Fig. 7-11.

7-3-7. Loading Ring Assembly (See Fig. 7-12, 13.)

1. Removal

- 1) Remove the mechanism as described in item Section 2, 2-15.
- 2) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 3) Operate the mode selector, and move the guide base assembly ① until just before lock, and the entrance guide assembly ② until just before lock where the ring stopper ③ screw is visible. (Do not move loading ring assembly ④.)

- 4) Remove the stopper washer ⑤ and remove No. 10 gear assembly ⑥.
- 5) Remove screw ⑦ and the roller retainer ⑧ and ring roller ⑨.
- 6) Remove the two screws ⑩ and the ring stopper ⑪ and ring roller ⑫.
- 7) Remove the loading ring assembly ⑬ as shown by arrow. (See Fig. 7-12.)

Note: Be careful that the loading ring assembly ⑬ does not touch the drum when it is removed.

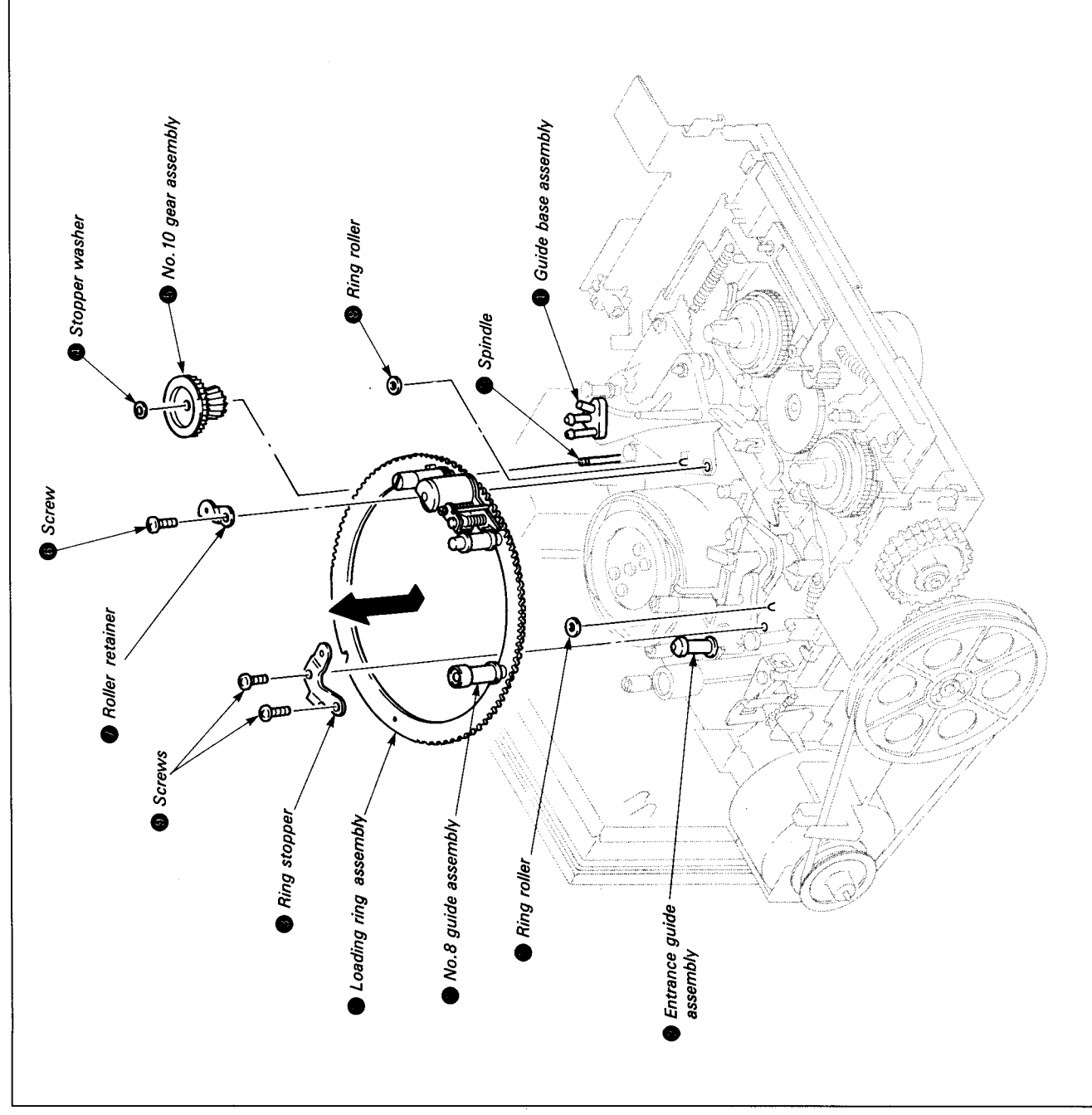


Fig. 7-12.

2. Mounting

- 1) Mount the loading ring assembly ● so that it is in unthreaded state (pinch roller arm assembly is on the front panel side). (Check that is in the state in step 3) under Removal.)
- 2) Mount the ring roller ● and ring stopper ● and tighten with the two screws ●. (No. 8 guide assembly ● should be closer to the front panel than the ring stopper ●.)
- 3) Mount the ring roller ● and roller retainer ● and tighten with screw ●. (Check that the loading ring assembly matches the three ring spacers.)
- 4) Place a half drop of oil on the spindle ●. (See Fig. 7-12.)
- 5) Check that the protrusions on the drive changer assembly are in the indentations of the L-SW assembly and insert the No. 10 gear phase jig (Ref. No. J-9). (See Fig. 7-13.)

- 6) Mount No. 10 gear assembly ● and stopper washer ● while pushing the No. 8 guide assembly ● against the ring stopper ●.
- 7) Pull out the No. 10 gear phase jig.
- 8) Set to **LOADING TOP** mode.
- 9) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.
- 10) Mount the mechanism by following the procedure in Section 2, 2-15. in reverse.

Note: Be sure to perform 7-4. Tape Path Adjustment after mounting.

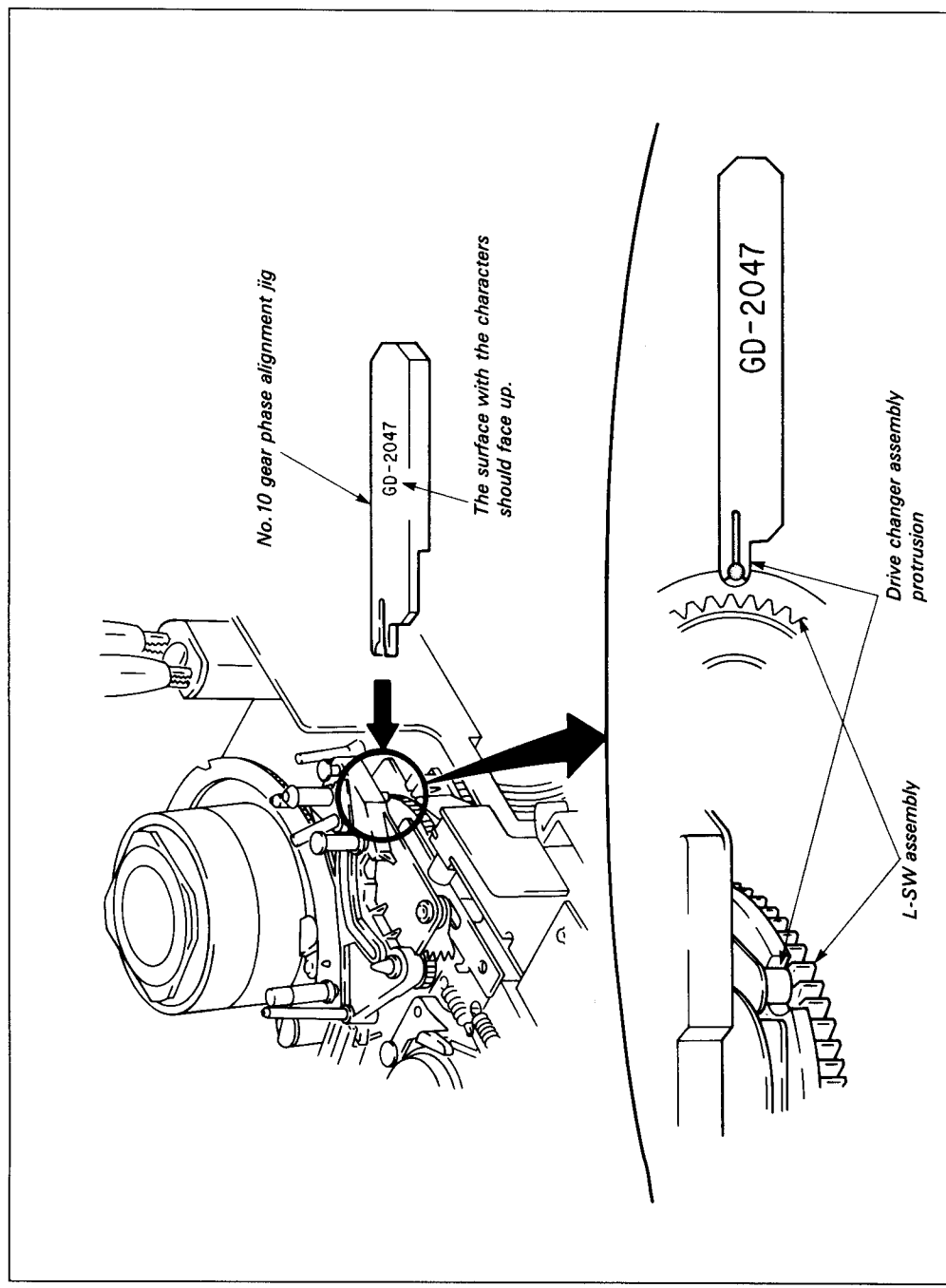


Fig. 7-13.

7-3-8. Pinch Roller Assembly (See Fig. 7-14. ~25.)

1. Removal

- 1) Remove the loading ring assembly as described in 7-3-7., 1. Removal. (See Fig. 7-12.)
- 2) Remove stopper washer ①. (See Fig. 7-14.)
- 3) Change the position of the torsion spring ③ on No. 7 guide assembly ②. (See Fig. 7-15.)
- 4) Rotate pinch roller arm assembly ④ in the direction of arrow. (See Fig. 7-16.)
- 5) Remove pinch roller arm assembly ④ in the direction of arrow. (See Fig. 7-17.)
- 6) Remove torsion spring ③. (See Fig. 7-18.)

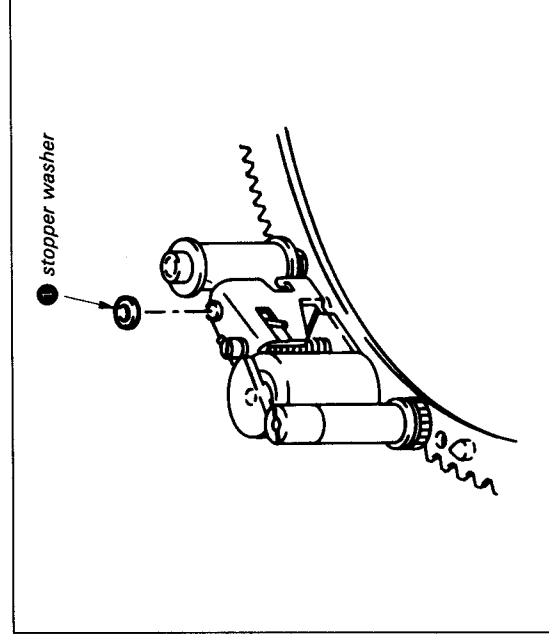


Fig. 7-14.

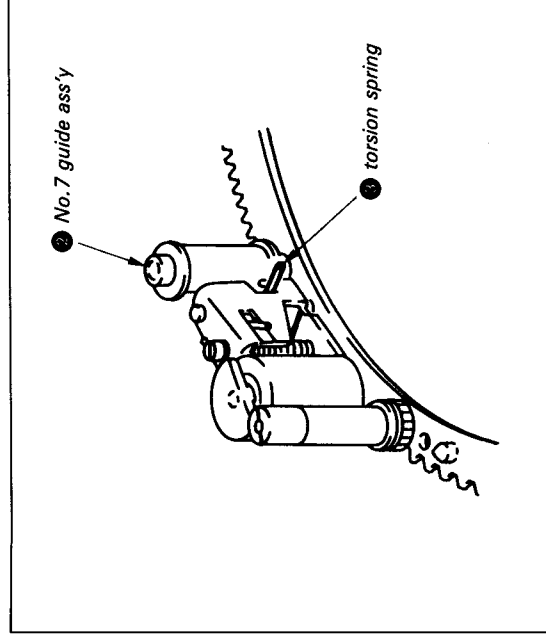


Fig. 7-15

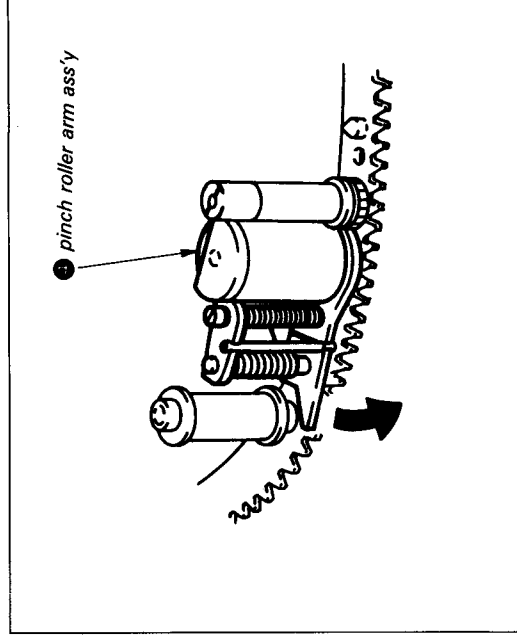


Fig. 7-16.

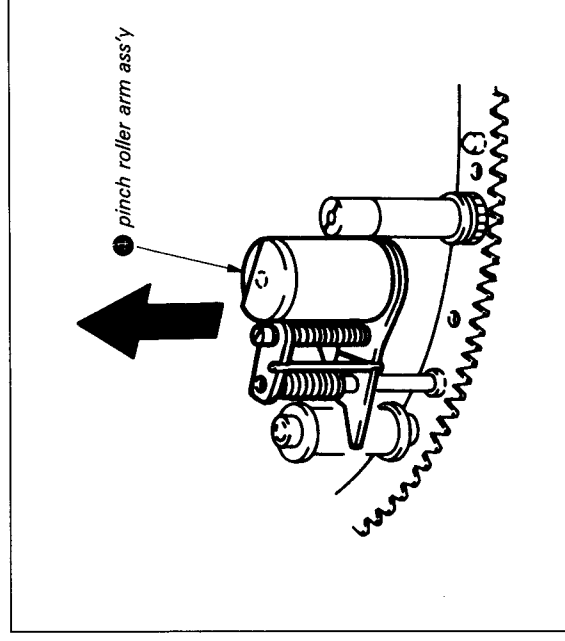


Fig. 7-17.

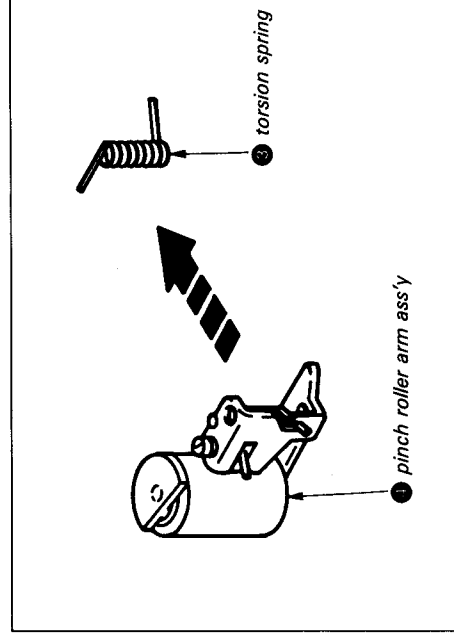


Fig. 7-18.

2. Mounting

- 1) Position torsion spring ③. (See Fig. 7-19.)
- 2) Insert the end of a paper clip ④ or other thin rod inside the pinch roller arm assembly hole ⑥. (See Fig. 7-20, 7-21.)
- 3) Push the end of the clip ④ through to contact the loading ring assembly shaft ⑦ and mount the pinch roller arm assembly ①. (See Fig. 7-22, 7-23.)
- 4) Place the spring on No. 7 guide assembly ②. At this time, check that the spring is hooked on section A. (See Fig. 7-24.)
- 5) Mount the stopper washer ①. (See Fig. 7-25.)
- 6) Mount the loading ring assembly according to 7-3-7., 2. Mounting. (See Fig. 7-12, 7-13)

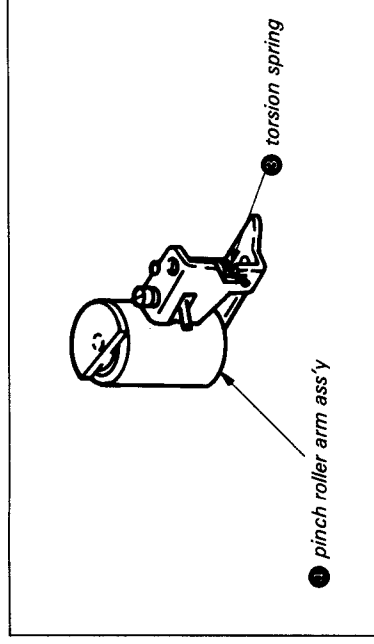


Fig. 7-19.

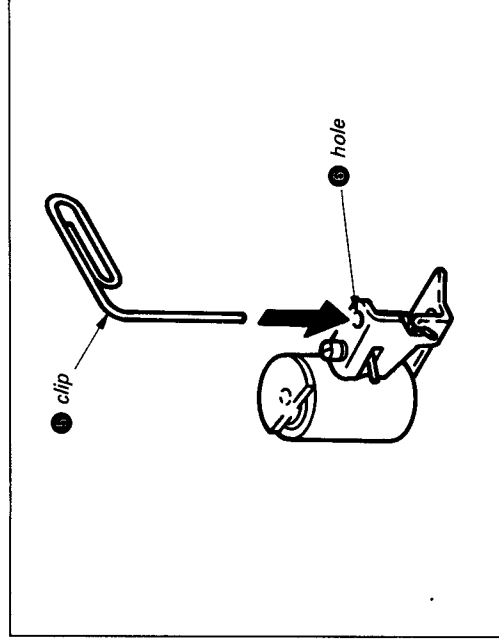


Fig. 7-20.

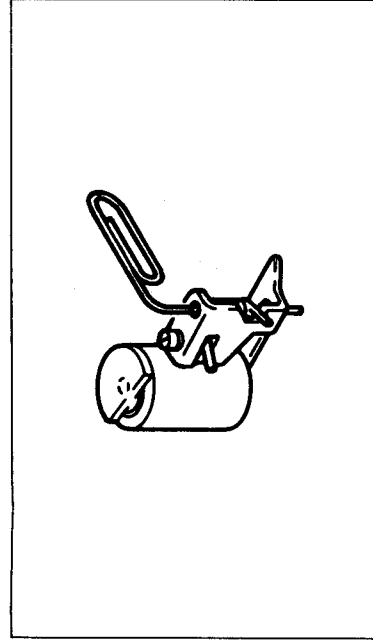


Fig. 7-21.

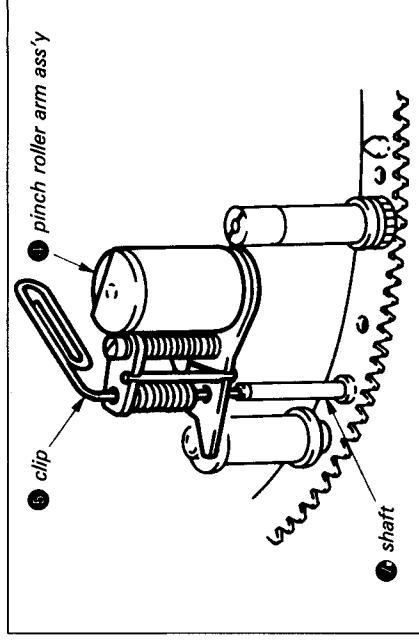


Fig. 7-22.

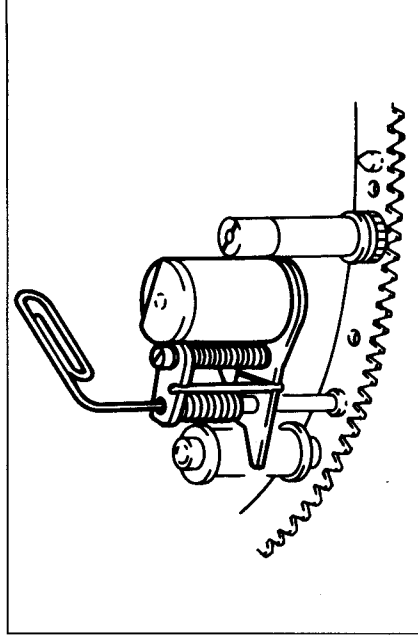


Fig. 7-23.

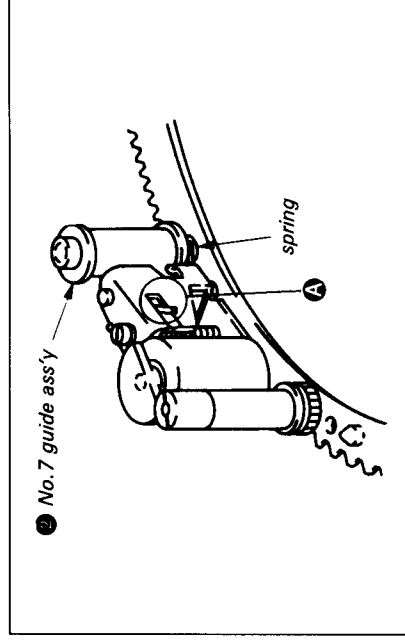


Fig. 7-24.

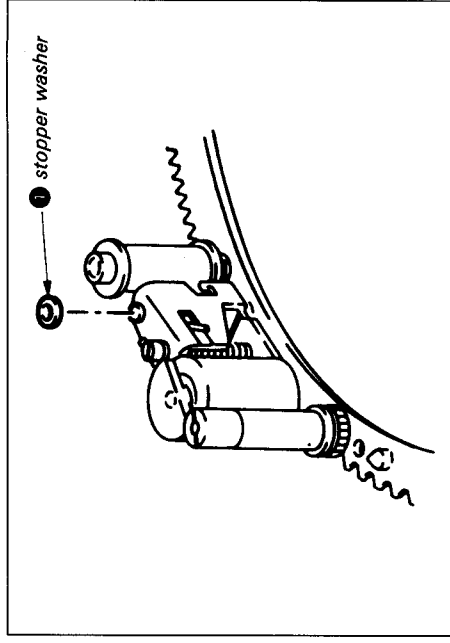


Fig. 7-25.

7-3-9. Slant Guide Assembly (See Fig. 7-26 ~ 28.)

1. Removal

- 1) Remove the loading ring assembly according to 7-3-7., 1. Removal. (See Fig. 7-12.)
- 2) Remove screw ❶ and E ring ❷.
- 3) Remove the slant guide assembly ❸. (See Fig. 7-26.)

2. Mounting

- 1) Operate the mode selector, and line up the right edge of the L slider assembly and the right edge of the lock slider assembly. (See Fig. 7-27.)

- 2) Set the slant guide assembly guide base assembly in unthreaded state (guide base assembly is on front panel side) and mount. (See Fig. 7-28.)

Note: At this time, confirm the engagement position of the slant guide drive gear and L slider assembly gear. (See Fig. 7-32.)

- 3) Mount the E ring ❷ and tighten screw ❶. (See Fig. 7-26.)
- 4) Put in the state in 7-3-7., 1. Removal, 3).
- 5) Mount the loading ring assembly according to 7-3-7., 2. Mounting (See Fig. 7-12, 7-13.)

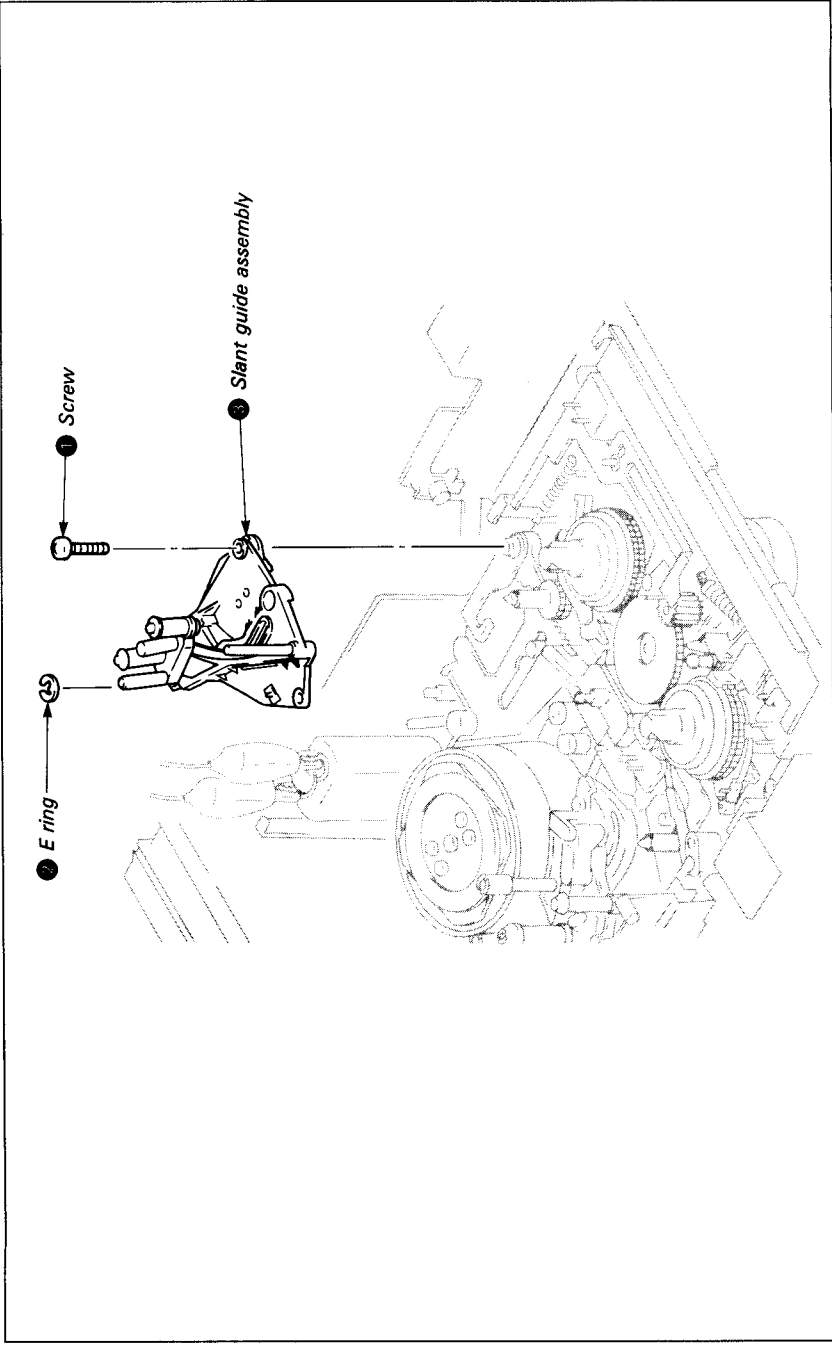


Fig. 7-26.

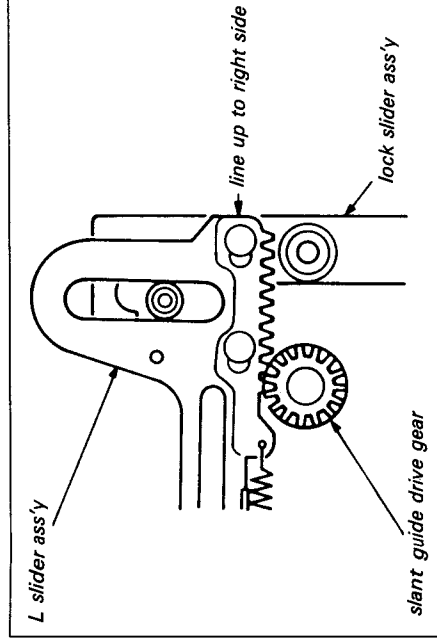


Fig. 7-27.

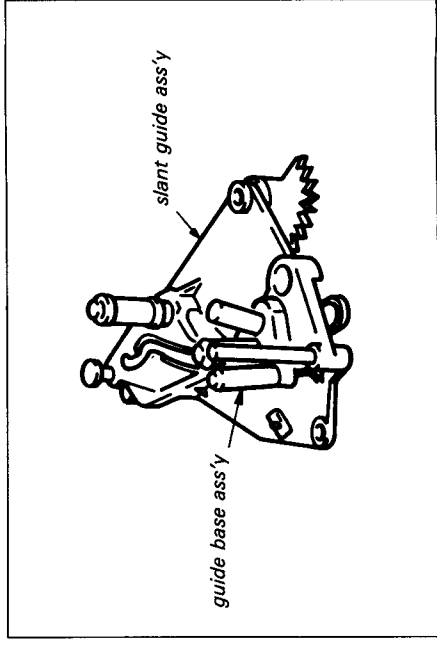


Fig. 7-28.

7-3-10. Entrance Guide (P) Assembly

(No. 2 Guide Assembly) (See Fig. 7-29.)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Turn the rotary upper drum counterclockwise and separate the head portion from the entrance guide (P) assembly ①.
- 3) Remove the two screws ②.
- 4) Remove No. 3 guide nut ③, and remove guide flange ④, guide ⑤ and compression spring ⑥.
- 5) Remove the entrance guide assembly ①.

2. Mounting

- 1) Engage the entrance guide (P) assembly and L slider assembly so that the part without teeth A on the bottom of the entrance guide (P) assembly and the part without teeth B on the L slider assembly match.
- 2) Mount the compression spring ⑥, guide ⑤ and guide flange ④ in that order, then temporarily tighten the guide nut ③.

- 3) Tighten the two screws ②.

- 4) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

Note: Be sure to perform 7-4. Tape Path Adjustment after mounting.

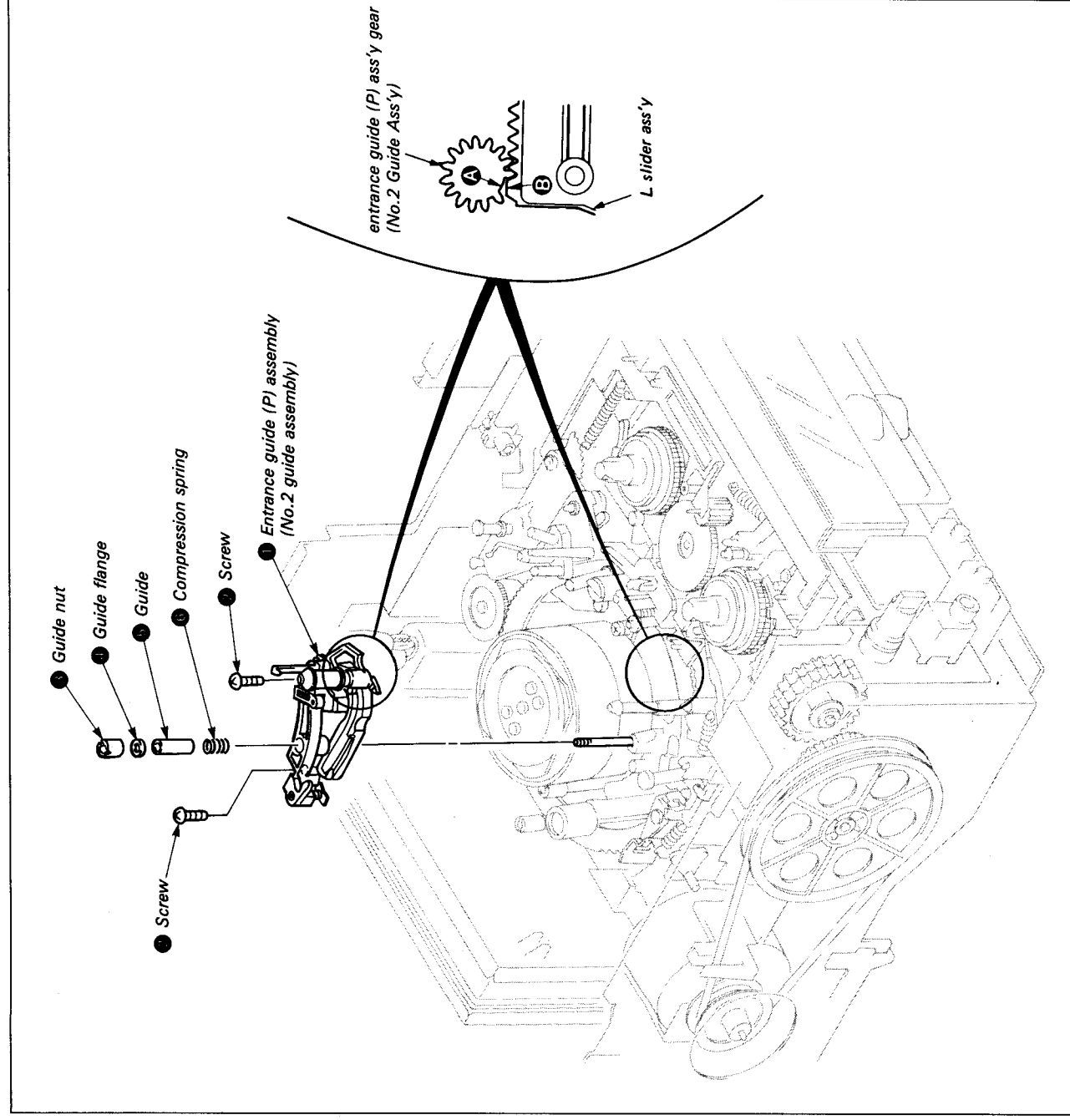


Fig. 7-29.

7-3-11. L Slider Assembly (See Fig. 7-30. ~32.)

1. Removal

- 1) Remove the slant guide assembly according to 7-3-9., 1. Removal.
- 2) Remove the entrance guide (P) assembly according to 7-3-10., 1. Removal.
- 3) Set to **DRUM START** mode.
- 4) Remove slant guide drive gear ①.
- 5) Remove the tension regulator load arm assembly ② pin from the cam groove of the tension regulator arm assembly. (Refer to 7-3-4. Tension Regulator Arm Assembly.)
- 6) Remove the two stopper washers ③.
- 7) Remove the L slider assembly ④ while pushing the RL arm assembly protrusion ⑤ in the direction of arrow.
- 8) Remove the stopper washer ⑥ and the tension regulator load arm assembly ②.

2. Mounting

- 1) Lubricate the portions indicated in Fig. 7-31.
- 2) Mount the tension regulator load arm assembly ② and the stopper washer ⑥.
- 3) Mount the L slider assembly ④ while pushing the RL arm assembly protrusion ⑤ in the direction of arrow.
- 4) Put the tension regulator load arm assembly ② pin into the M slider groove. (Refer to 7-3-15. M slider)
- 5) Mount the two stopper washers ③.
- 6) Refer to 7-3-4. 2. Mounting, 2), and place the tension regulator load arm assembly ② pin in the tension regulator arm assembly cam groove.
- 7) Operate the mode selector, and match up the right edge of the L slider assembly and the right edge of the lock slider assembly. (See Fig. 7-27.)
- 8) Engage the slant guide drive gear so that the notch is 1 tooth away from the L slider assembly left side tooth. (See Fig. 7-32.)
- 9) Mount the entrance guide (P) assembly according to 7-3-10., 2. Mounting.
- 10) Mount the slant guide assembly according to 7-3-9., 2. Mounting.

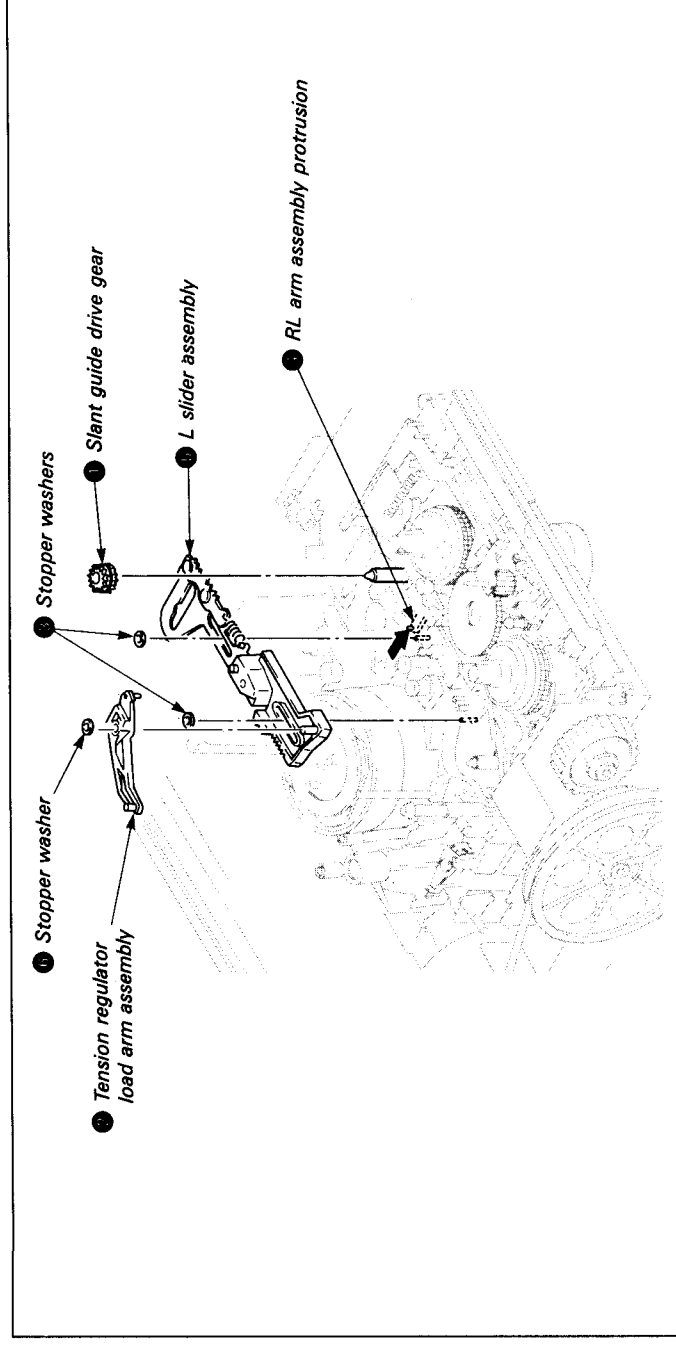


Fig. 7-30.

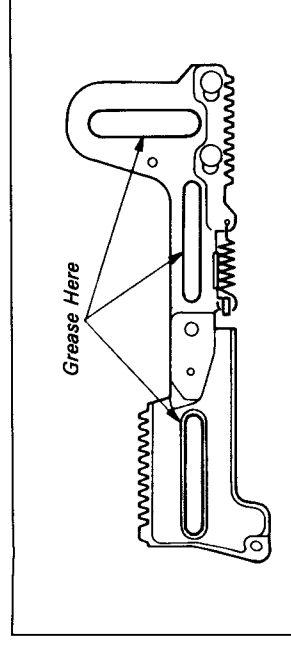


Fig. 7-31.

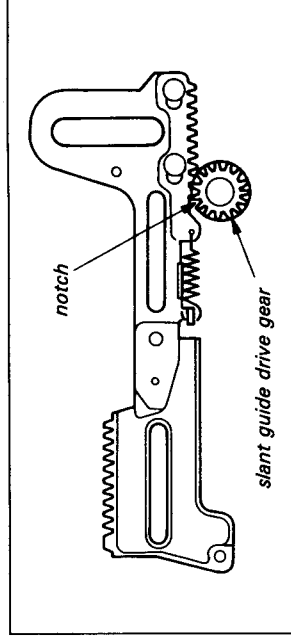


Fig. 7-32.

7-3-12. L-SW Assembly (See Fig. 7-33 ~ 35.)

1. Removal

- 1) Remove the L slider assembly according to 7-3-11., 1. Removal.
- 2) Remove lock slider retainer ❶.
- 3) Remove screw ❷ and lock slider A ❸.
- 4) Remove stopper washer ❹ and torsion spring ❺.
- 5) Remove drive changer assembly ❻.
- 6) Remove connector ❼.
- 7) Remove the two screws ❽ and the L-SW assembly ❾.

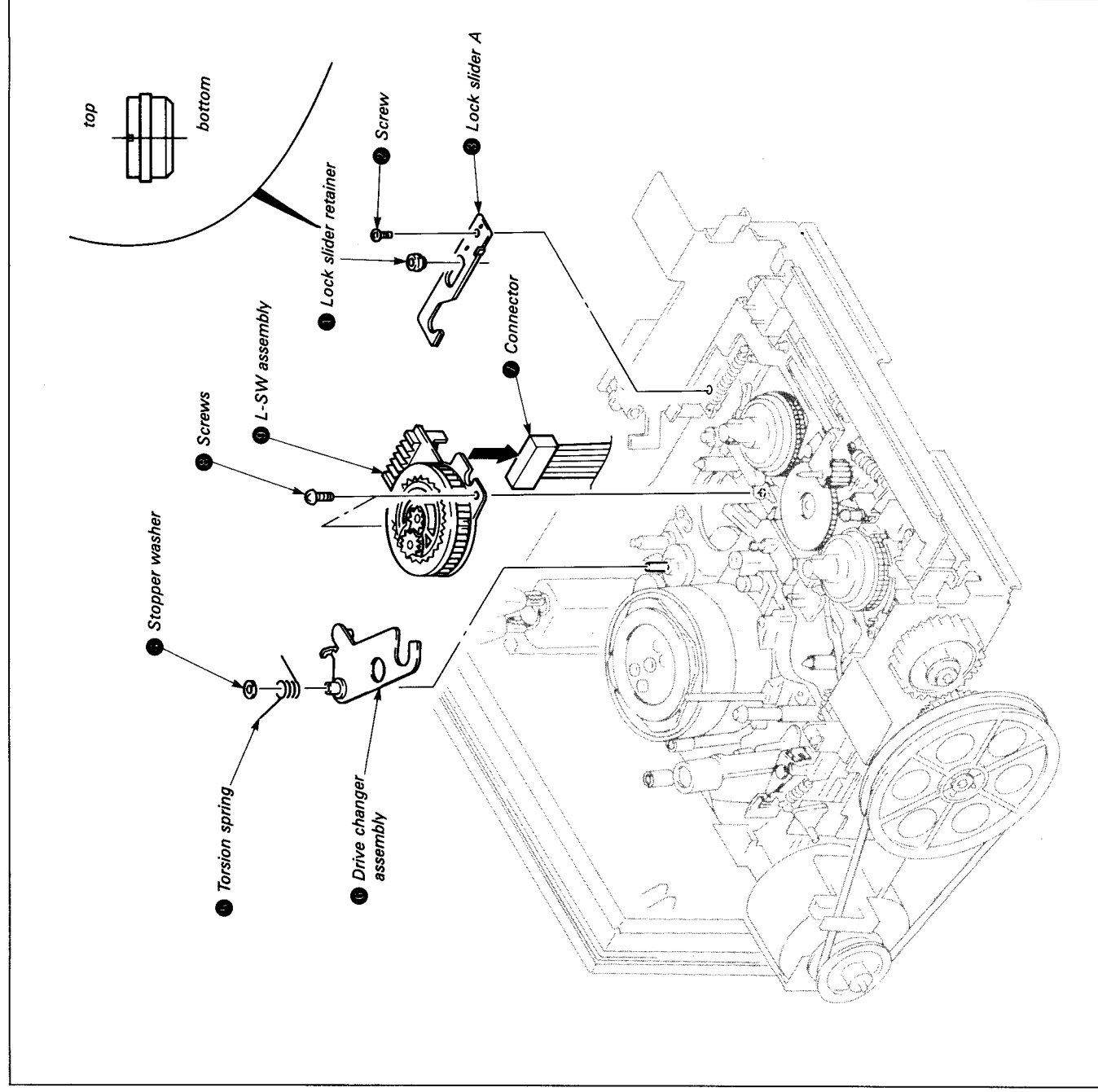


Fig. 7-33.

2. Mounting

- 1) Place a half drop of oil on the L-SW assembly ③ spindle (planetary gear).
- 2) Mount L-SW assembly ③ and tighten with the two screws ④.
- 3) Connect connector ⑦.
- 4) Operate the mode selector and check that the L-SW assembly ③ rotates.
- 5) Place a half drop of oil on spindle ③.
- 6) Grease the drive change assembly ⑥ as shown in Fig. 7-34.
- 7) Mount the drive changer assembly ⑥.
- 8) Mount the torsion spring ⑤ and the stopper washer ①.
- 9) Operate the mode selector and check that the L-SW assembly ③ rotates.
- 10) Mount lock slider A ④ and tighten screw ②.
- 11) Mount lock slider retainer ①.
- 12) Operate the mode selector and set to the position in Fig. 7-35.
- 13) Mount the L slider assembly according to 7-3-11., 2, Mounting.

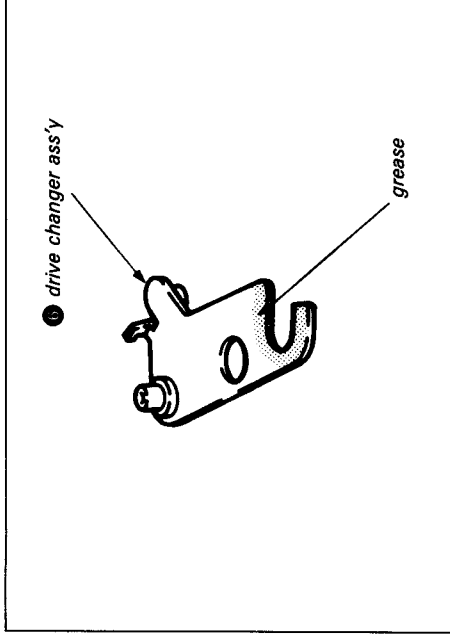


Fig. 7-34.

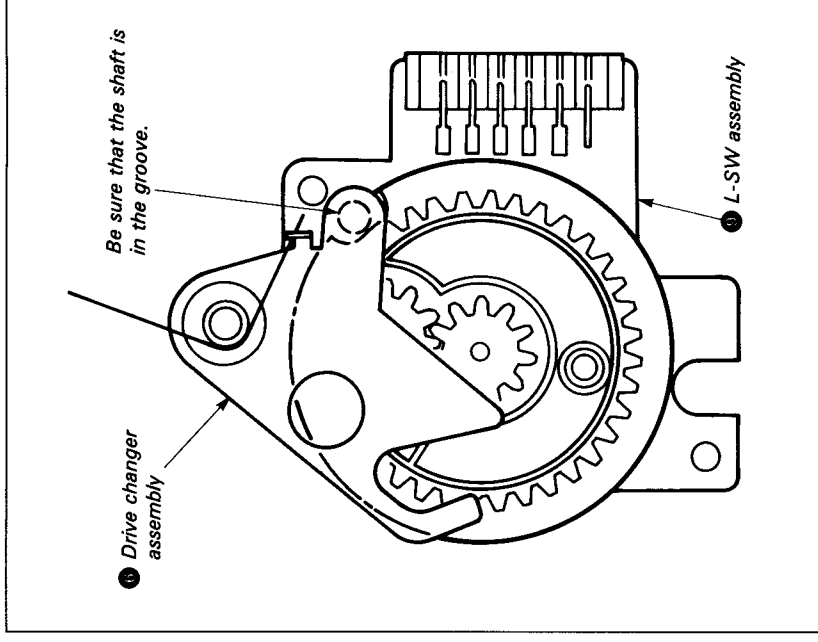


Fig. 7-35.

7-3-13. Plunger Solenoid (See Fig. 7-36.)

1. Removal

- 1) Open the SP-2 board according to Section 2, 2-6. and remove connector CN018 (white) 3P.
- 2) Remove the cassette compartment assembly according to Section 2, 2-14.
- 3) Remove tension spring ①.
- 4) Remove the two stopper washers ②.
- 5) Remove screw ③ and the lock slider B assembly ④.
- 6) Remove the two screws ⑤ and the plunger solenoid ⑥. (At this time, be careful not to scratch the T reel assembly with the screwdriver, and do not touch it.)

2. Mounting

- 1) Insert the plunger solenoid pin ⑦ into the P arm hole ⑧ and mount with the two screws ⑤. (Again, be careful not to scratch or touch the T reel assembly.)
- 2) Mount lock slider B assembly ④ and tighten screw ③.
- 3) Mount the two stopper washers ②.
- 4) Hook on the tension spring ①.
- 5) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.
- 6) Connect the CN018 connector (white) to the SP-2 board.
- 7) Mount the SP-2 board by following the procedure in Section 2, 2-6. in reverse.

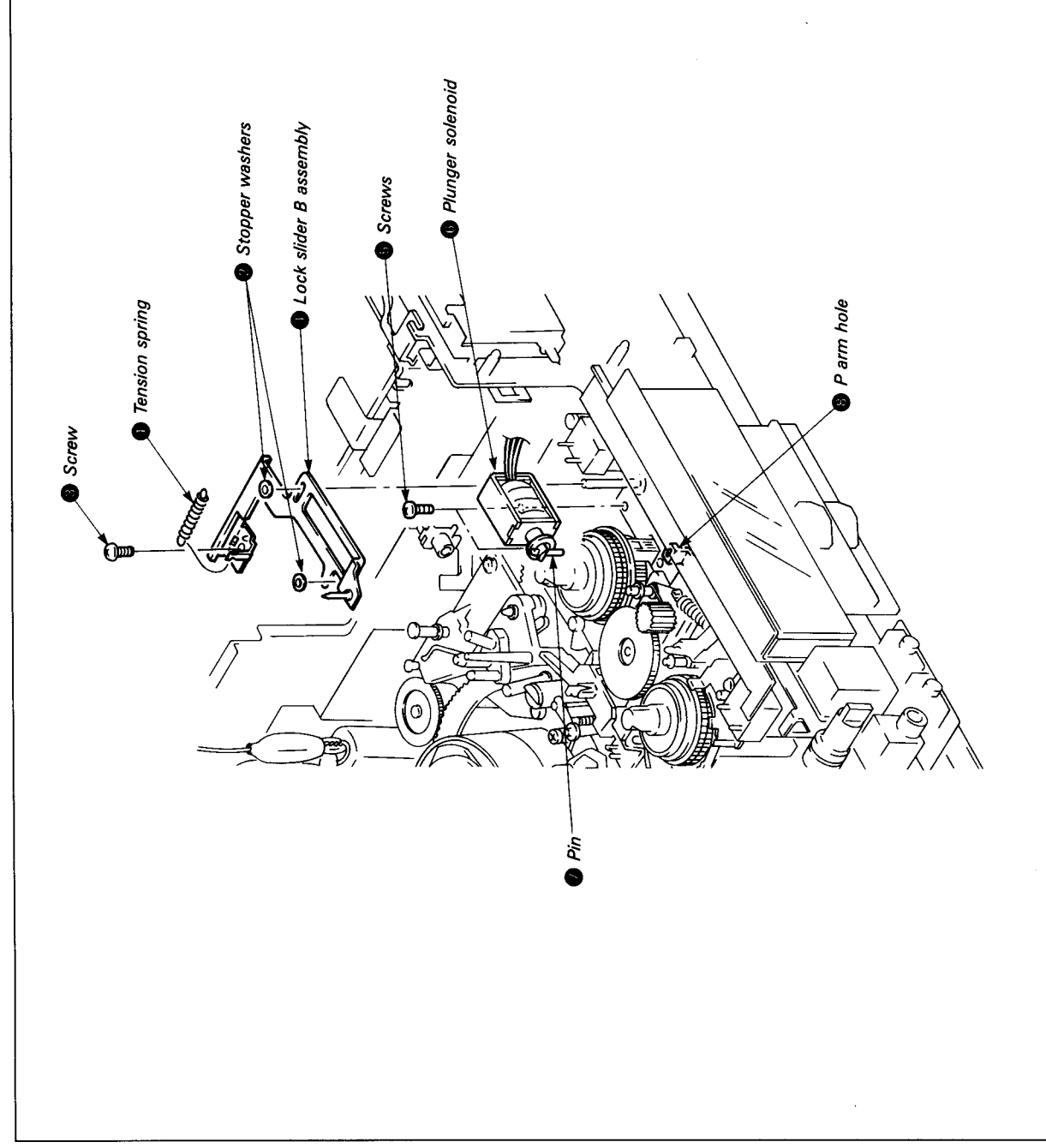


Fig. 7-36.

7-3-14. M-SW Assembly (See Fig. 7-37 ~ 39)

1. Removal

- 1) Remove the T reel assembly according to 7-3-2. (See Fig. 7-7.)
- 2) Remove stopper washer ❶ and the drive gear (B) assembly ❷.
- 3) Remove the LD-1 board ❸. (See Fig. 7-37.)
- 4) Remove lock slider B assembly according to 7-3-13., 1. Removal, 3), 4) and 5).
- 5) Remove tension spring ❹ and B release arm ❺.
- 6) Check [EJECT] mode.
- 7) Remove stopper washer ❻ and the mode output gear ❼.
- 8) Remove screw ❽ and the push switch ❾.
- 9) Remove connector ❿.
- 10) Remove the three screws ⓫, the control motor cover ⓬ and the M-SW assembly ⓭.
- 11) Remove solder A and remove the DC motor ⓮.

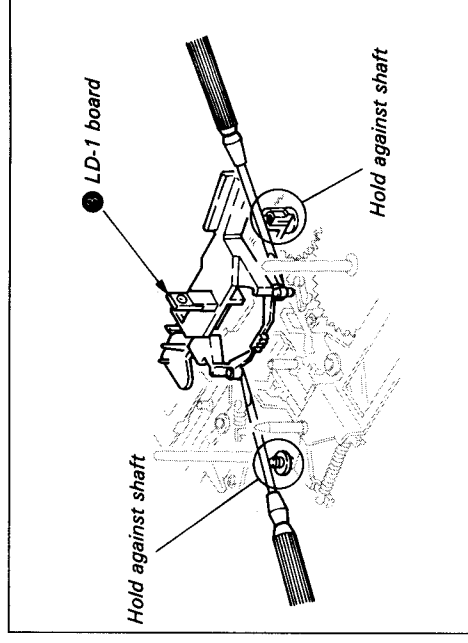


Fig. 7-37.

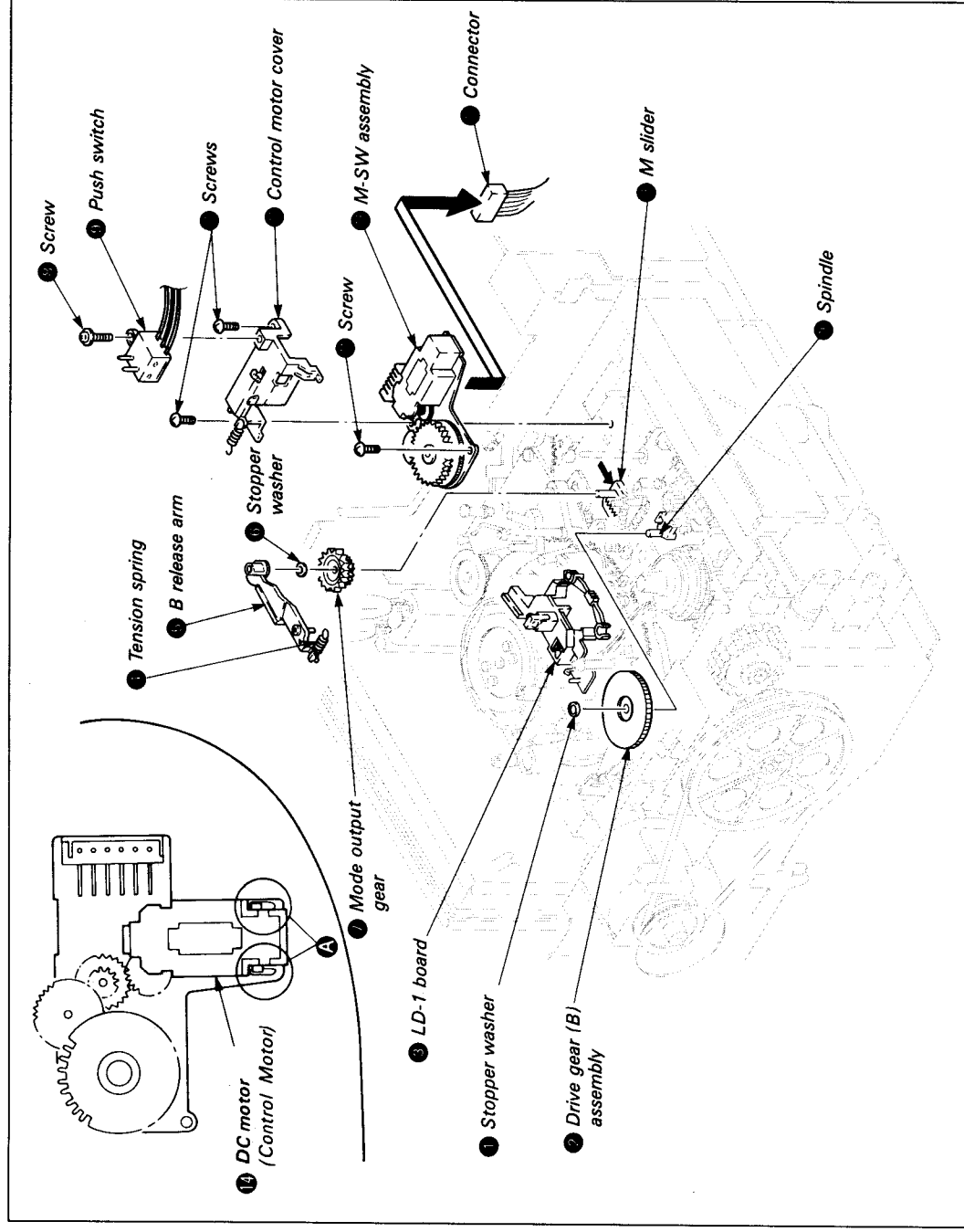


Fig. 7-38.

2. Mounting

- 1) Solder the DC motor (Control Motor) ●.
- 2) Mount the M-SW assembly ● and the control motor cover ●, and tighten the three screws ●.
- 3) Connect connector ●.
- 4) Mount push switch ● and tighten screw ●.
- 5) Check **EJECT** mode.
- 6) Check that M slider ● is moved fully in the direction of arrow **B**.
- 7) Place a half drop of oil on spindle ●. (See Fig. 7-38.)
- 8) Mount the mode output gear ● so that the positioning holes are lined up. (See Fig. 7-39.)

- 9) Mount stopper washer ●.
- 10) Set to **LOADING/UNLOADING** mode.
- 11) Mount B release arm ● and tension spring ●.
- 12) Mount the lock slider B assembly according to 7-3-13., 2. Mounting, 2), 3) and 4).
- 13) Mount the LD-1 board ●.
- 14) Mount drive gear B assembly ● and stopper washer ●.
- 15) Mount the T reel assembly according to 7-3-2., 2. Mounting.

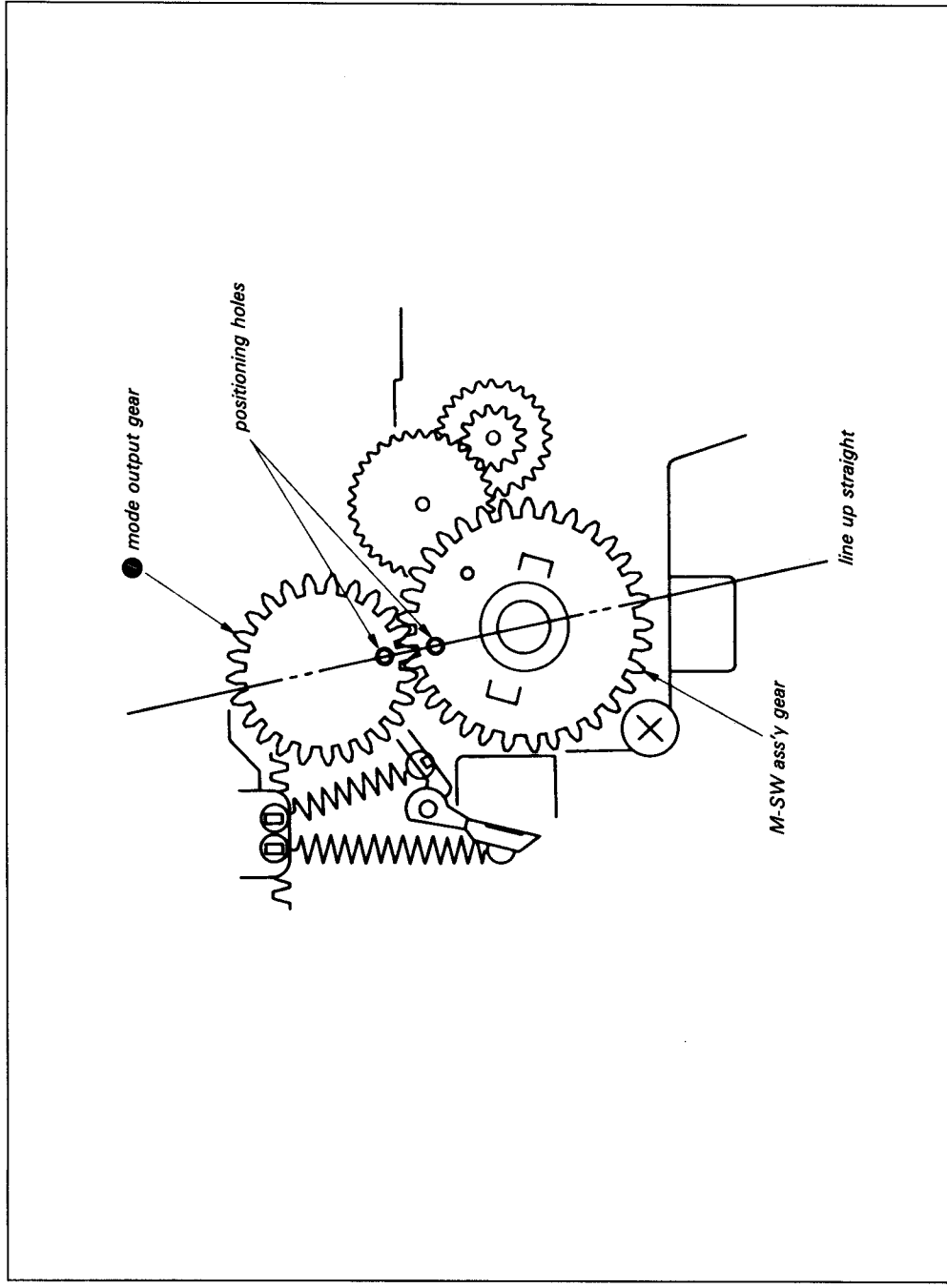


Fig. 7-39.

7-3-15. M Slider (See Fig. 7-40 ~43.)

1. Removal

- 1) Remove the pinch press assembly according to 7-3-3., 1. Removal. (See Fig. 7-8.)
- 2) Remove the tension regulator arm assembly according to 7-3-4., 1. Removal. (See Fig. 7-9.)
- 3) Remove the tension regulator band assembly according to 7-3-5., 1. Removal. (See Fig. 7-10.)
- 4) Remove the loading ring assembly according to 7-3-7., 1. Removal. (See Fig. 7-12.)
- 5) Perform 7-3-14., 1. Removal, Steps 1)~5). (See Fig. 7-37, 7-38.)
- 6) Remove the tension regulator load arm assembly according to 7-3-11., 1. Removal, 8). (See Fig. 7-30.)
- 7) Remove tension spring ①.
- 8) Remove the two stopper washers ② and remove the S main brake assembly ③ and T main brake assembly ④.
- 9) Set to **LOADING TOP** , **LOADING/UNLOADING** mode.

- 10) Remove the screw ⑤ and the drive assembly ⑥.
- 11) Perform 7-3-14., 1. Removal, steps 6) and 7).
- 12) Remove the two tension springs ⑦.
- 13) Remove REW brake assembly ⑧.
- 14) Remove stopper washer ⑨ and B release slider ⑩.
- 15) Remove stopper washer ⑪ and ring lock spring ⑫ and RL arm ⑬.
- 16) Move the M slider ⑭ to the right (leave about 5 mm at the left.)
- 17) Remove the E ring ⑮ and the pinch press lever assembly ⑯.
- 18) Remove spring ⑰ and the hard brake (S) ⑱.
- 19) Remove stopper washer ⑲, push the mode arm ⑳ in the direction of arrow, and lift up the left side of the M slider ㉑ to remove.

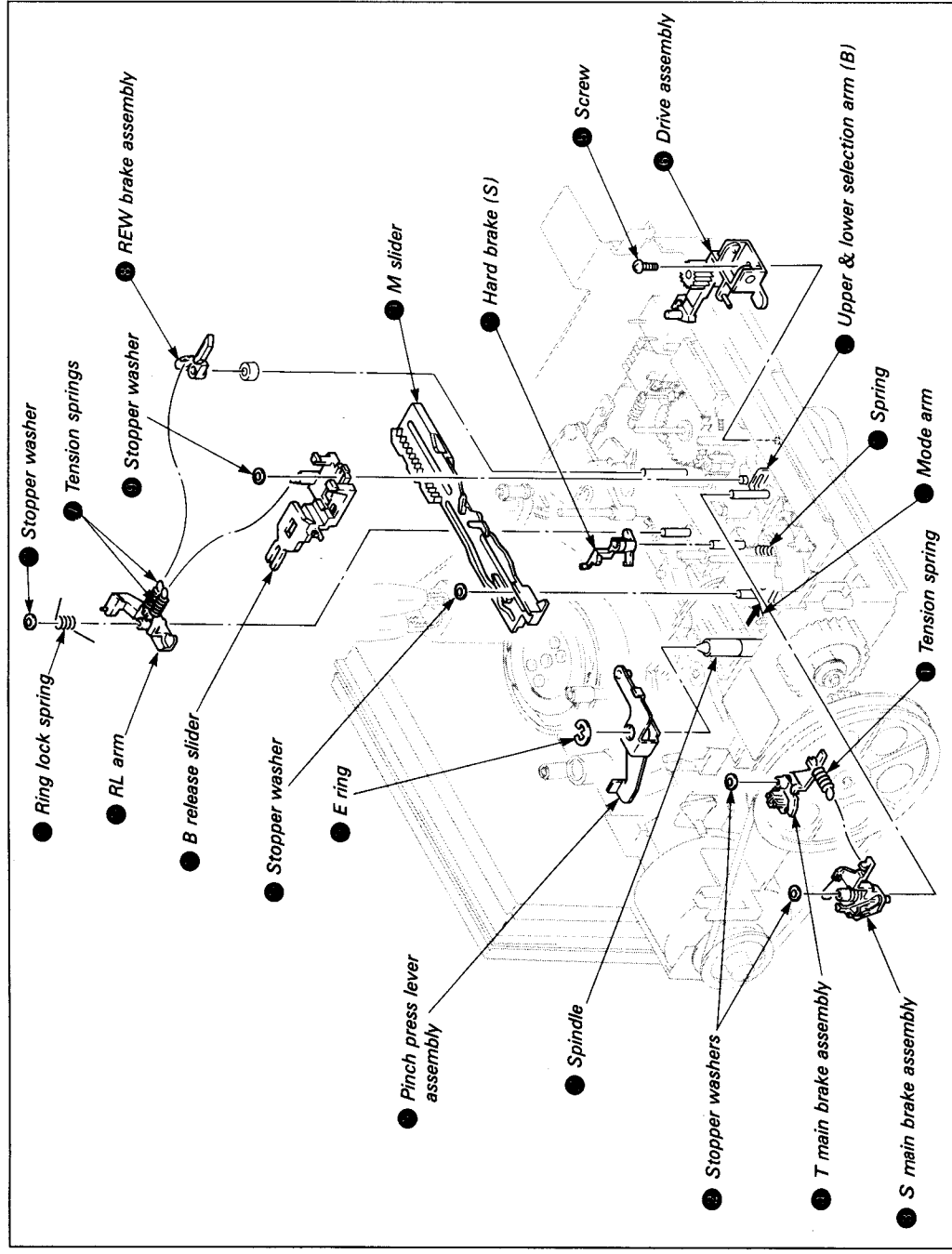


Fig. 7-40.

2. Mounting

- 1) Apply grease. (See Fig. 7-41.)
- 2) Push mode arm ① in the direction of arrow, and mount the M slider ②, noticing the positioning of the other parts in Fig. 7-42, and mount the stopper washer ③.
- 3) Mount hard brake (S) ④ and spring ⑤.
- 4) Apply grease. (See Fig. 7-43.)
- 5) Apply a half drop of oil from the spindle ⑥ groove to the bottom, mount the pinch press lever assembly ⑦ and the E ring ⑧.
- 6) Mount RL arm ⑨, mount the ring lock spring ⑩ and the stopper washer ⑪.
- 7) Mount B release slider ⑫ and stopper washer ⑬.
- 8) Mount REW brake assembly ⑭.
- 9) Mount the two tension springs ⑮.

Note: Mount the springs as follows, being careful not to mix them up.

- B release slider spring: total diameter 2 mm, wire diameter 0.18 mm
- REW brake assembly spring: total diameter 1.6 mm, wire diameter 0.12 mm

- 10) Push the M slider ② all the way to the left.
- 11) Perform 7-3-14., 2. Mounting, steps 7), 8) and 9).
- 12) Set to **LOADING/UNLOADING** mode.
- 13) Insert the drive assembly ⑯ horizontal shaft into the upper & lower selection arm (B) ⑰ groove, and mount with the screw ⑱.
- 14) Mount T main brake assembly ⑲ and S main brake assembly ⑳. Mount the two stopper washers ㉑ and the tension spring ㉒.
- 15) Mount the tension regulator load arm assembly according to 7-3-11., 2. Mounting, step 2).
- 16) Perform 7-3-14., 2. Mounting, steps 11) ~ 15).
- 17) Mount the loading ring assembly according to 7-3-7., 2. Mounting.
- 18) Mount the tension regulator band assembly according to 7-3-5., 2. Mounting.
- 19) Mount the tension regulator arm assembly according to 7-3-4., 2. Mounting.
- 20) Mount the pinch press arm assembly according to 7-3-3., 2. Mounting.

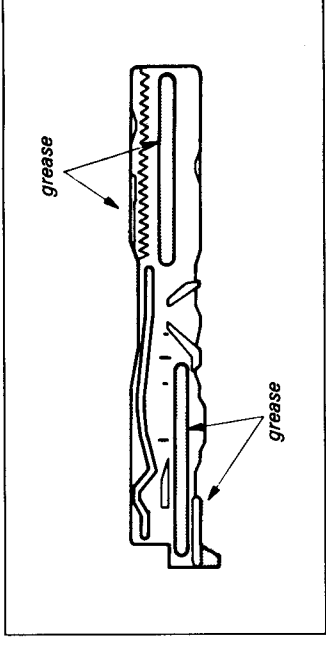


Fig. 7-41.

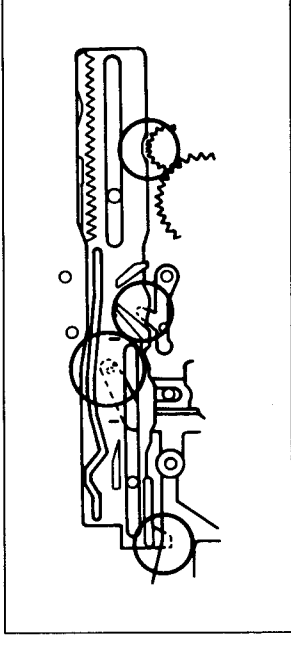


Fig. 7-42.

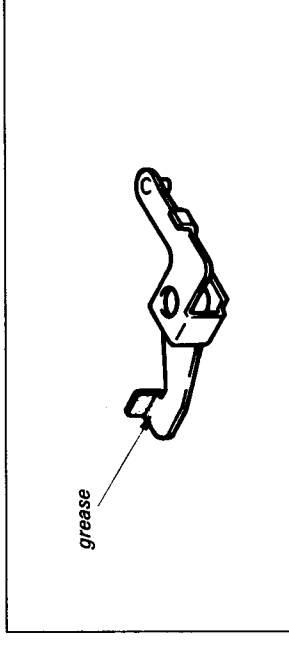


Fig. 7-43.

7-3-16. Capstan Motor (See Fig. 7-44.)

1. Removal

- 1) Remove the loading ring assembly according to 7-3-7., 1. Removal. (See Fig. 7-12.)
- 2) Open the SP-2 board according to Section 2, 2-6.
- 3) Remove the connector ① (CN002, white, 11P) from SP-2 board.
- 4) Remove the connector ② (CN005, white, 4P) from RS-17 board.
- 5) Remove the two screws ③ and rotor retainer ④.
- 6) Remove the two screws ⑤ and remove the capstan motor ⑥ in the direction of arrow.

2. Mounting

- 1) Mount capstan motor ⑥ and tighten the two screws ⑤.
- 2) Mount the rotor retainer ④ and tighten the two screws ③.
- 3) Connect connectors ① and ②.
- 4) Mount the loading ring assembly according to 7-3-7., 2. Mounting. (See Fig. 7-12, 7-13.)
- 5) Mount the SP-2 board by performing the procedure in Section 2, 2-6. in reverse.

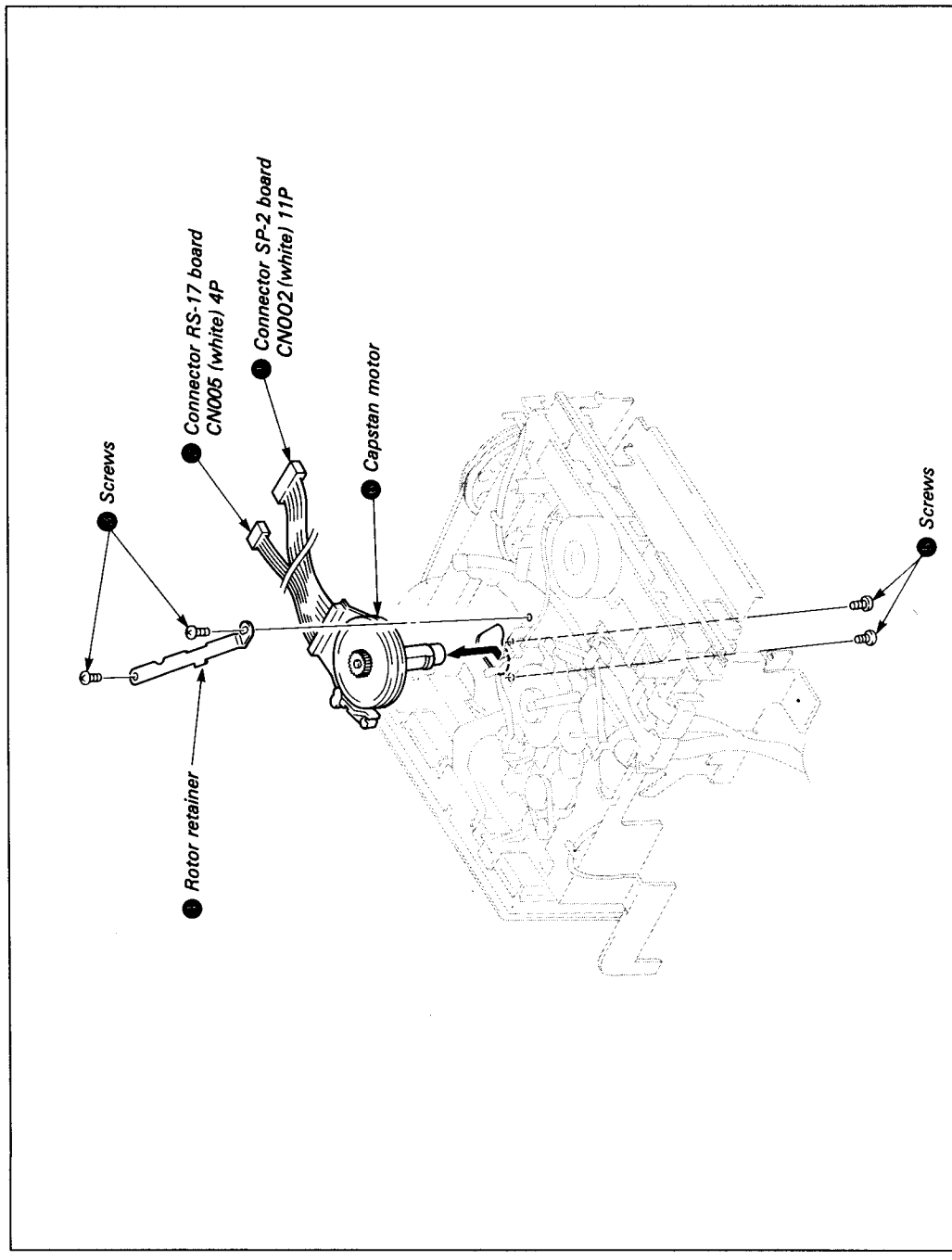


Fig. 7-44.

7-3-17. Rotary Upper Drum Replacement

1. Removal

- 1) Remove two hexagon socket screws (2 × 2.7) ❶ and dismount the dynamic damper ❷. (See Fig. 7-45.)
- 2) Suction solder at all of the soldered eight positions ❸. Check that the printed wiring board and pins jutting out from below freely move using tweezers, or other tool. (See Fig. 7-45.)
- 3) Remove the two hexagon socket screws (2 × 5) ❹. (See Fig. 7-45.)
- 4) Mount the dismantling Jig ❺ with the accessory screws ❶ utilizing the screw holes in which the dynamic damper was mounted. Drive the hexagon socket screw ❶ into the jig ❺ and remove the rotary upper drum ❷. (See Fig. 7-46.)

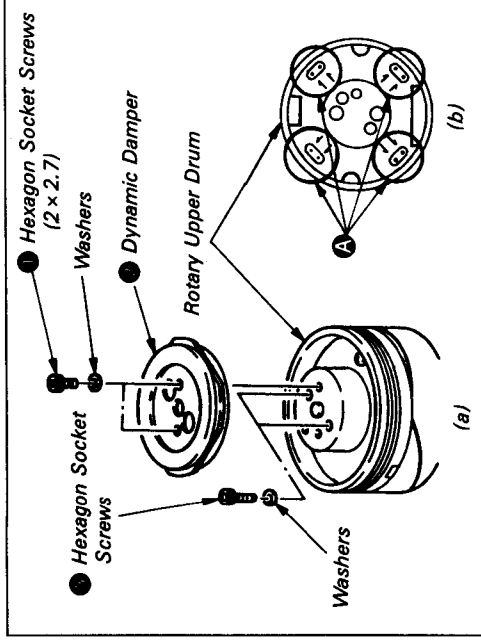


Fig. 7-45.

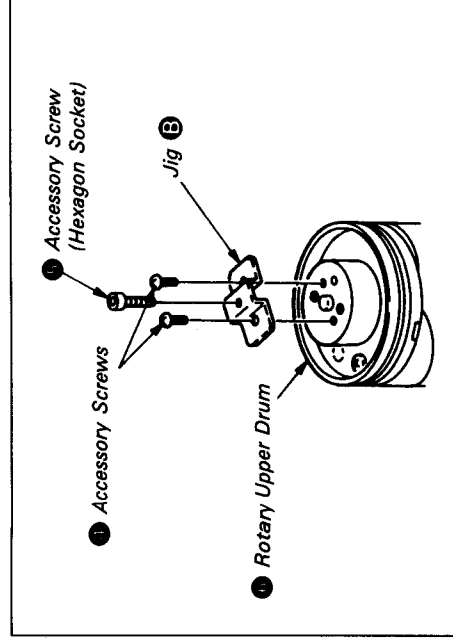


Fig. 7-46.

2. Mounting

Rotary Upper Drum Part No.
DGR-12E-R A-7049-147-A

- 1) Carefully clean the flange surfaces and planes of the rotary upper drum and visually check that no blemishes or flaws are left.
- 2) Insert Jig ❸ in the positioning hole ❹ so that the holes of the rotary upper drum ❶ and flange coincide. Lightly insert the rotary upper drum in the drum shaft while aligning their positions. (See Fig. 7-47.) (Check that pins are projecting above the holes on the printed circuit board of the rotary upper drum. When the pins are caught, correct using tweezers, etc.)
- 3) Remove Jig ❸, lightly push the rotary upper drum by hands. If the rotary upper drum does not go in to the bottom, alternately tighten the two hexagon socket screws (2 × 5) ❺ by hand and fix them temporarily. (See Fig. 7-45, 7-48.)
- 4) Reinsert the Jig ❸ in the positioning hole ❹ and check that the jig can be inserted smoothly. (When the jig cannot be inserted, loosen the two hexagon socket screws (2 × 5) ❺ and slide it inserting a clock screw-driver in the hole.)
- 5) Tighten the two hexagon socket screws (2 × 5) ❺.
Note: Do not tighten too strongly.
- 6) Solder the eight positions ❸. (See Fig. 7-45.)
Note: Be careful not to flow solder below the printed wiring board.
- 7) Tighten the two hexagon socket screws (2 × 2.7) ❶ reversing the screw removal procedure and remount the dynamic damper ❷. (See Fig. 7-45.)
Note: Be careful not to tighten too strongly.
When mounting, be careful not to mix the hexagon socket screws (2 × 2.7) ❶ and hexagon socket screws (2 × 5) ❺.

Note: After mounting, be sure to perform 7-4. Tape Path Adjustment.

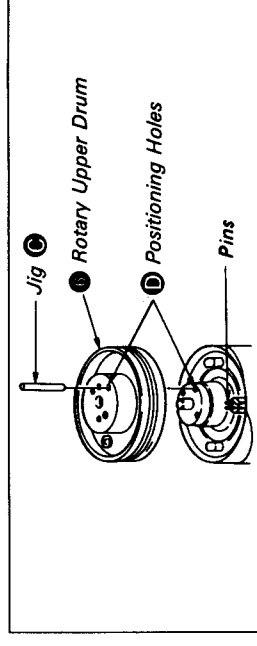


Fig. 7-47.

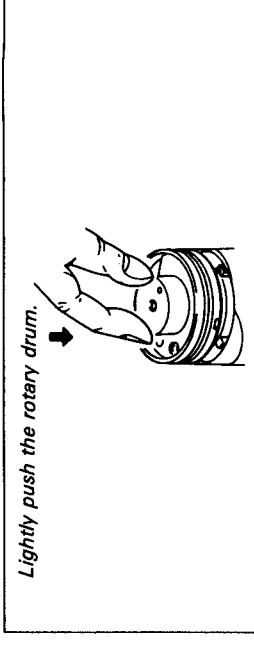


Fig. 7-48.

Notes on Drum Assembly and Rotary Upper Drum Mounting

1. When mounting the drum assembly with a magnetized screwdriver, mount with the head tip in the position shown below to prevent it from being affected by the screwdriver.
2. Be sure to perform tape path adjustment after mounting.

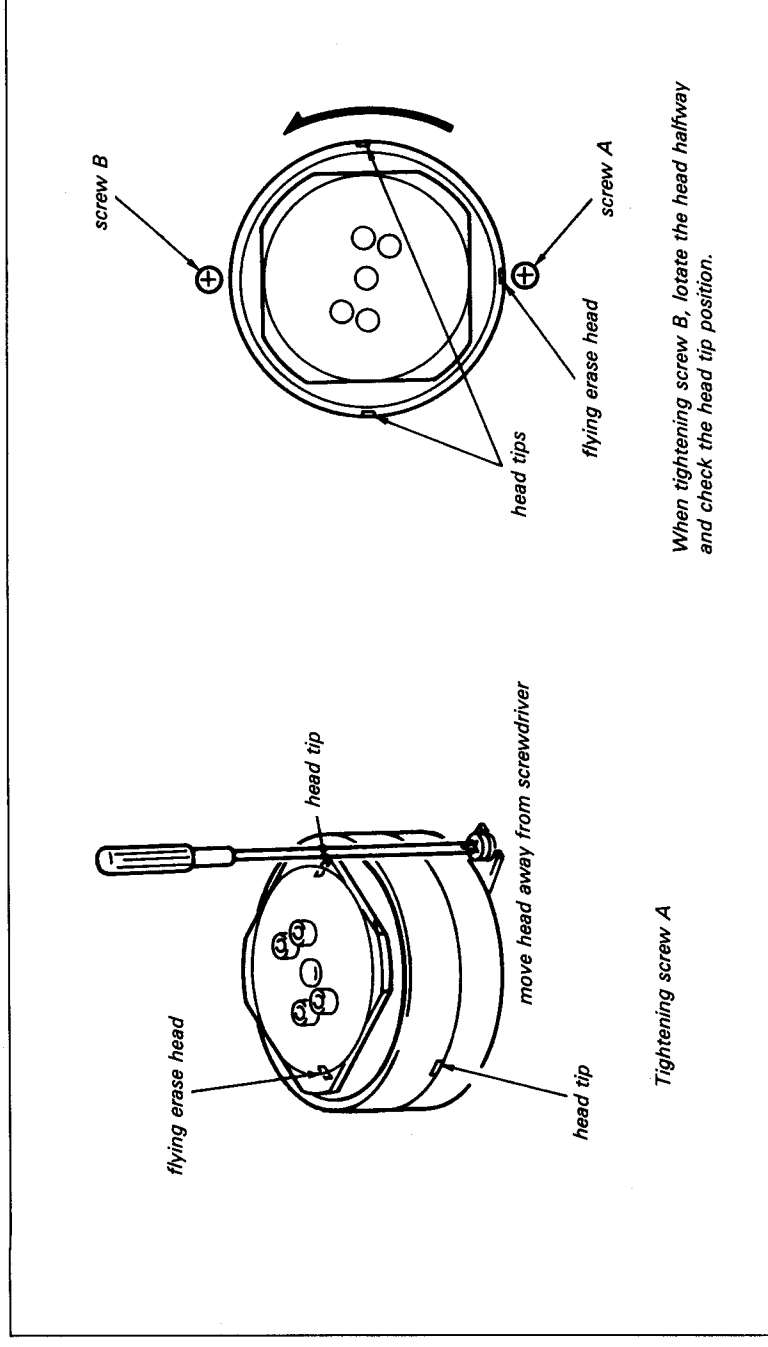


Fig. 7-49.

7-3-18. Replacement of Drum Assembly

(See Fig. 7-50, 51)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Open the SP-2 board according to Section 2, 2-6.
- 3) Remove screw ① and the shaft ground terminal ②. (See Fig. 7-50.)
- 4) Remove the three connectors ③.
- 5) Remove the two screws ④.
- 6) Remove the drum assembly ⑤. (See Fig. 7-51.)

Note: At this time, be careful that the drum assembly does not hit No. 3 guide, etc.

2. Mounting

- 1) Mount drum assembly ⑤ and tighten the two screws ④.
- 2) Connect the three connectors ③.
- 3) Mount shaft ground terminal ② and tighten screw ①.
- 4) Mount the SP-2 board by following the procedure in Section 2, 2-6, in reverse.
- 5) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14, in reverse.

Note: Be sure to perform 7-4. Tape Path Adjustment after mounting.

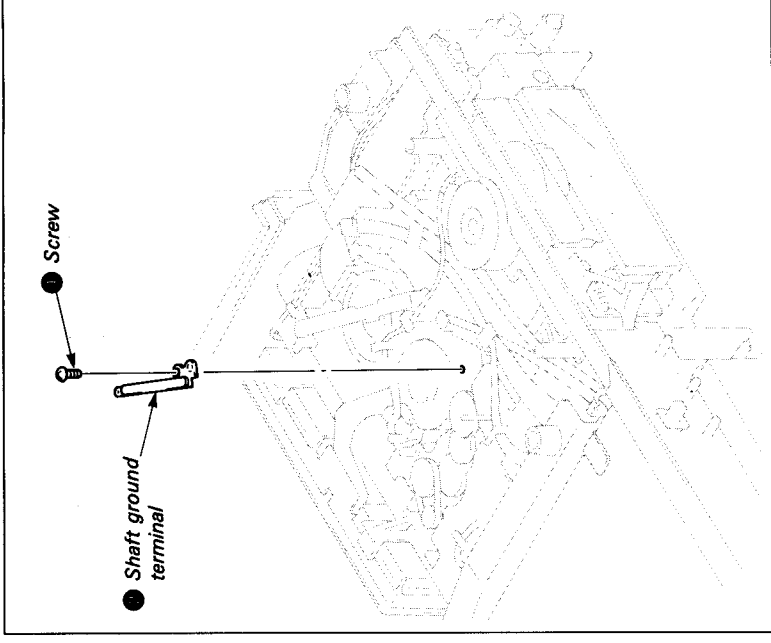


Fig. 7-50.

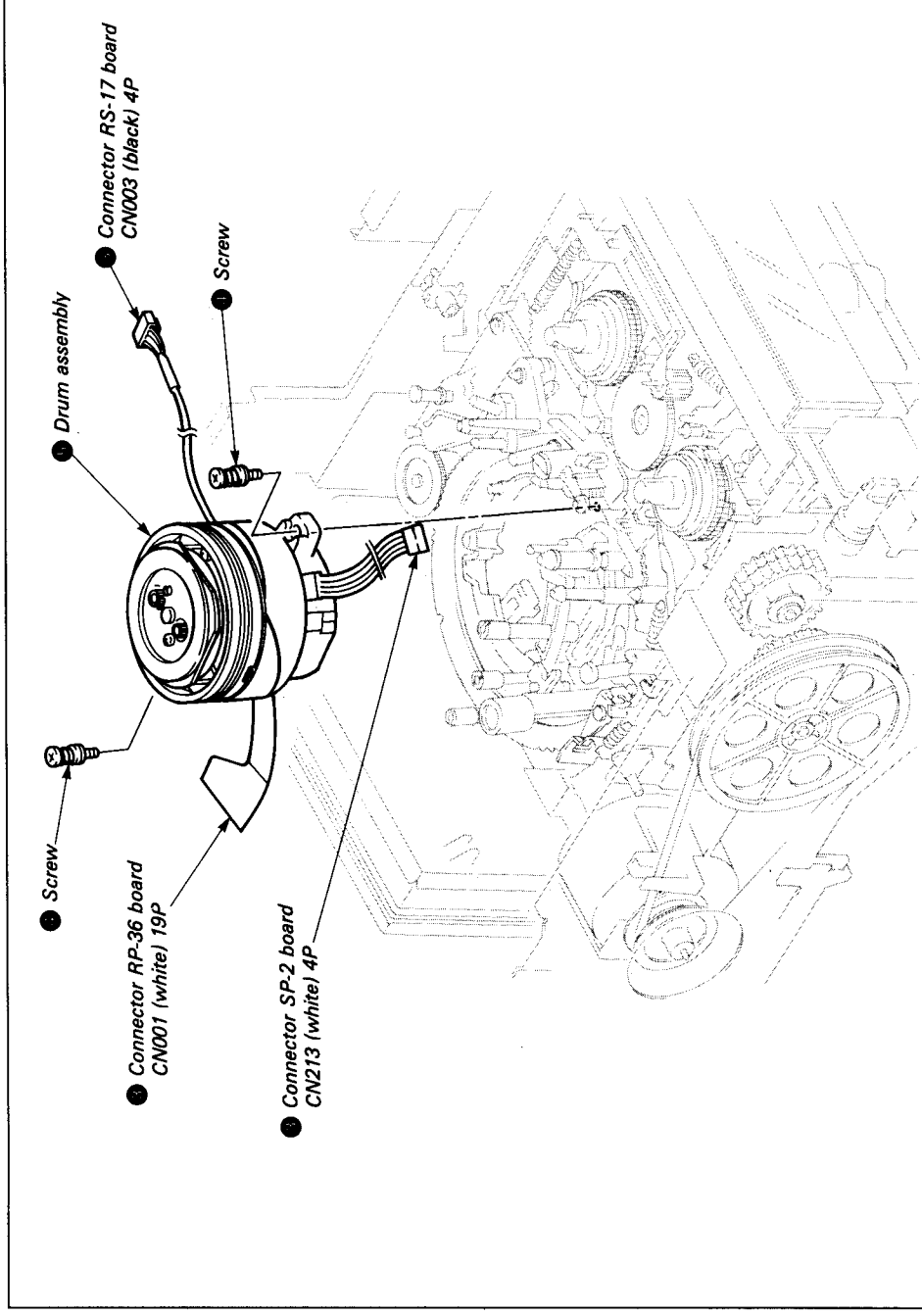


Fig. 7-51.

7-3-19. Adjustment After Replacement of No.3 Guide and No.4 Guide

For replacement of both No.3 and No.4 guides, line up the tape along the upper flange after replacing.

7-3-20. No.5 Guide Assembly (See Fig. 7-52.)

1. Removal

- 1) Remove the cassette compartment assembly according to item Section 2, 2-14.
- 2) Remove the three screws ❶ and No.5 guide assembly.
- 3) Remove guide nut ❷, compression spring ❸ and No.5 guide roller assembly ❹.

2. Mounting

- 1) Insert compression spring ❸ into No.5 guide roller assembly ❹, engage the bottom section and tighten guide nut ❷.
- 2) Mount No.5 guide assembly and tighten the three screws ❶.
- 3) Mount the cassette compartment assembly by following the procedure in item Section 2, 2-14. in reverse.

Note: Be sure to perform 7-4. Tape Path Adjustment after mounting.

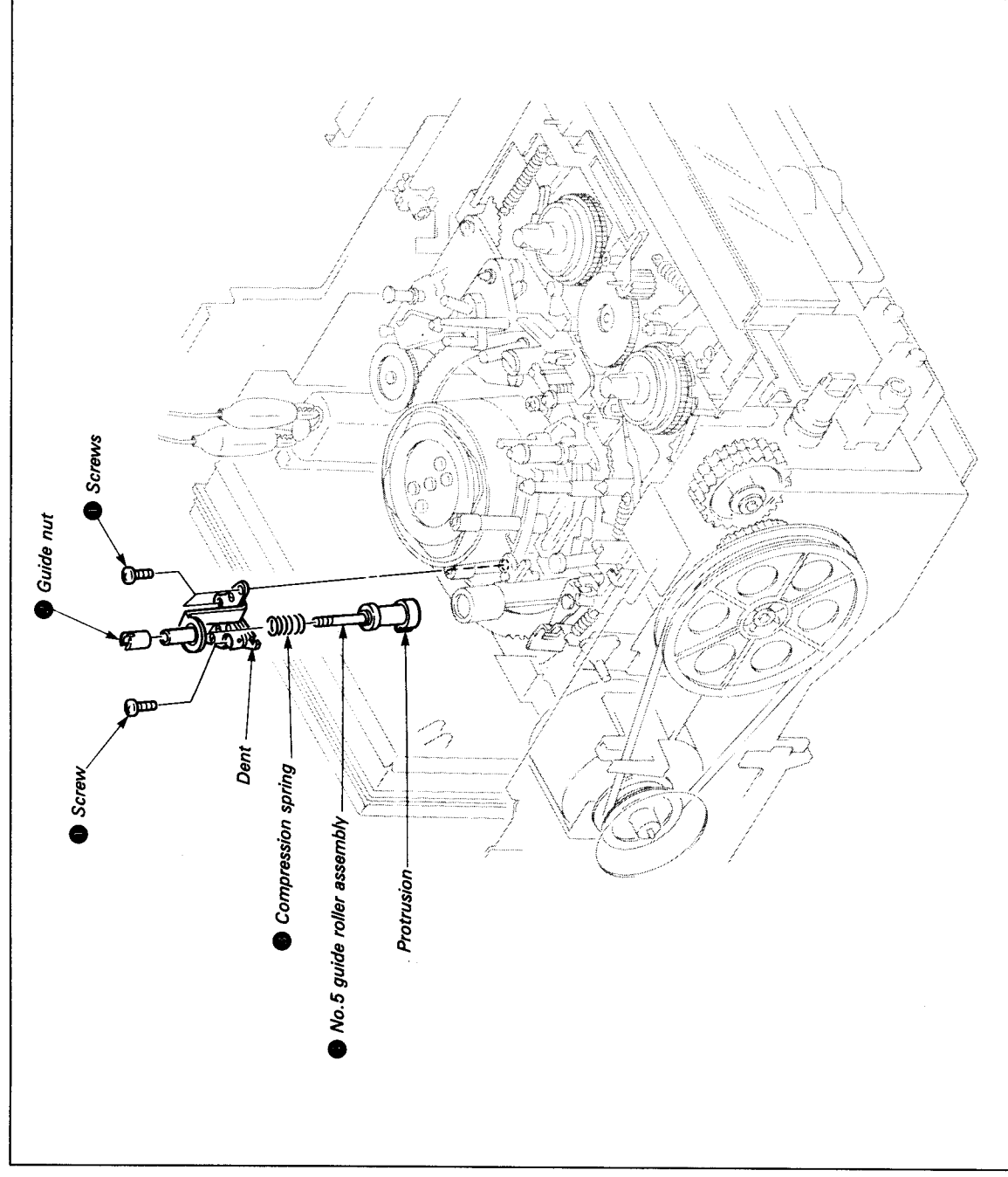


Fig. 7-52.

7-3-21. FWD Back Tension Adjustment (See Fig. 7-53.)

- 1) Remove the cassette compartment assembly according to Section 2, 2-14.
- 2) Remove the mechanism according to Section 2, 2-15.
- 3) Set to **LOADING END** **FWD** mode.
- 4) Loosen band adjustment plate **1** screw **2** and adjust as shown by arrow **A** so that the tension regulator arm assembly slit **3** and tension regulator arm assembly pin **4** are positioned as shown, and tighten screw **2**.

- 5) Place tension measurement reel (Ref. No. J-7) **5** on the S reel table assembly **6** and line up with No.1 guide, No.2, No.3 guide and the drum.
- 6) Pull dial tension gauge (Ref. No. J-6) **7** in the direction of arrow **B** and hook tension spring **8** onto the tension regulator spring hook assembly **9** so that the value is $12.5 \pm 1g$, as shown.
Value too large: arrow **C** direction
Value too small: arrow **D** direction

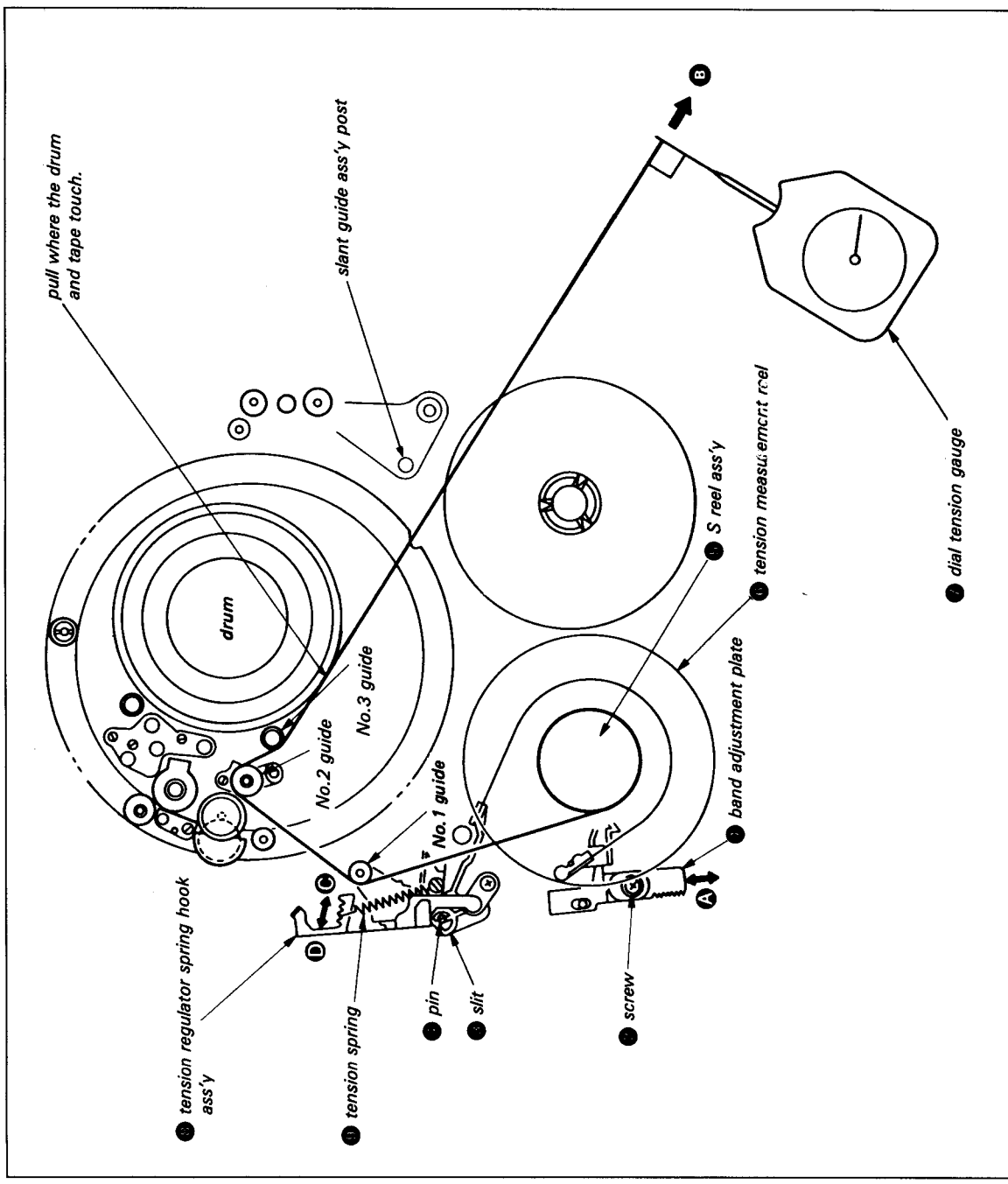


Fig. 7-53.

7-3-22. Replacement of Reel Motor (See Fig. 7-54.)

1. Removal

- 1) Open the SP-2 board according to item Section 2, 2-6.
- 2) Remove connector ❶ from SP-2 board.
- 3) Remove the two screws ❷ and reel motor bracket ❸.
- 4) Remove the two screws ❹ and reel motor ❺ in the direction of arrow.

2. Mounting

- 1) Mount the reel motor ❺ to reel motor bracket ❸ with two screws ❹.
- 2) Mount the reel motor assembly and tighten with two screws ❷.
- 3) Connect the connector ❶ to SP-2 board.
- 4) Mount the SP-2 board by following the procedure in Section 2, 2-6. in reverse.

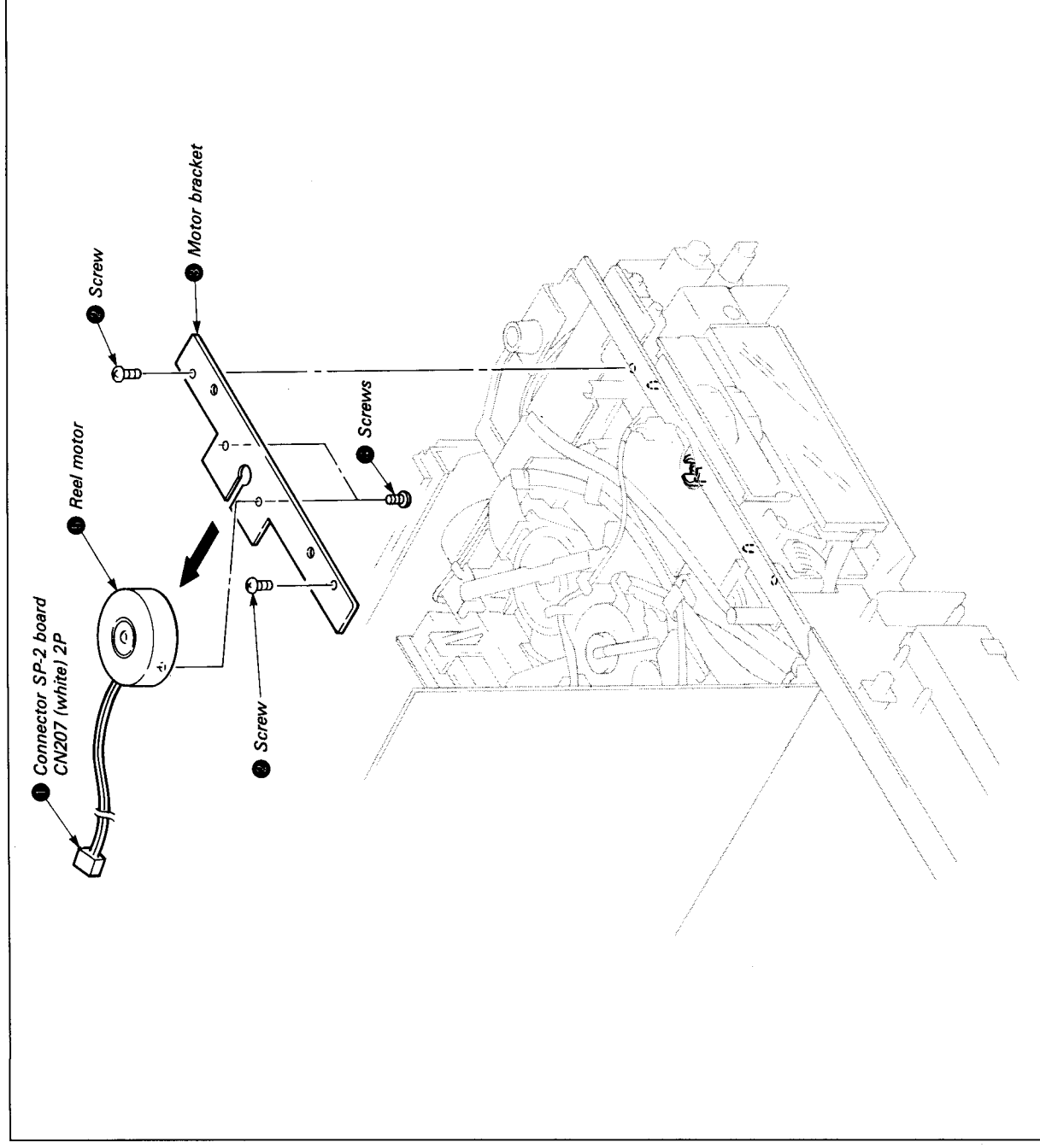


Fig. 7-54.

7-3-23. Check of S and T Main Brake Torque

- 1) Remove the front panel according to Section 2, 2-2.
- 2) Remove the cassette compartment assembly according to Section 2, 2-14.

1. S Main Brake Torque (See Fig. 7-55, 7-56)

- 1) Set to **FF/REW** mode.
- 2) Place the tension measurement reel (Ref. No. J-8) on the S reel table.
- 3) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are satisfied.

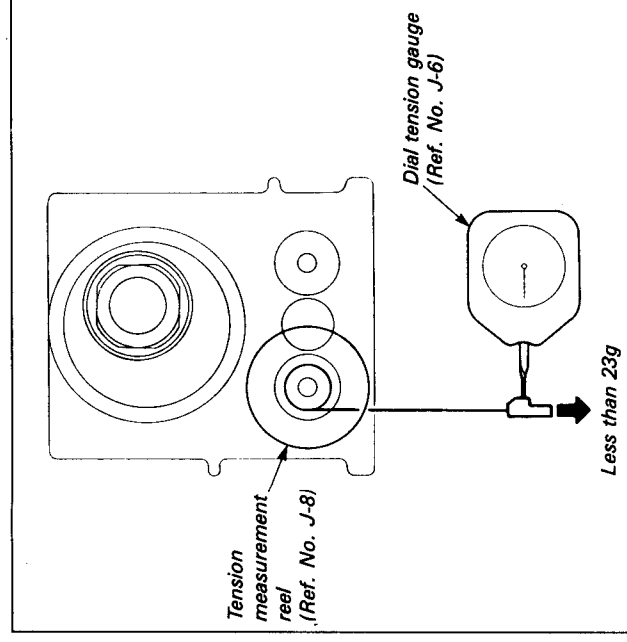


Fig. 7-55.

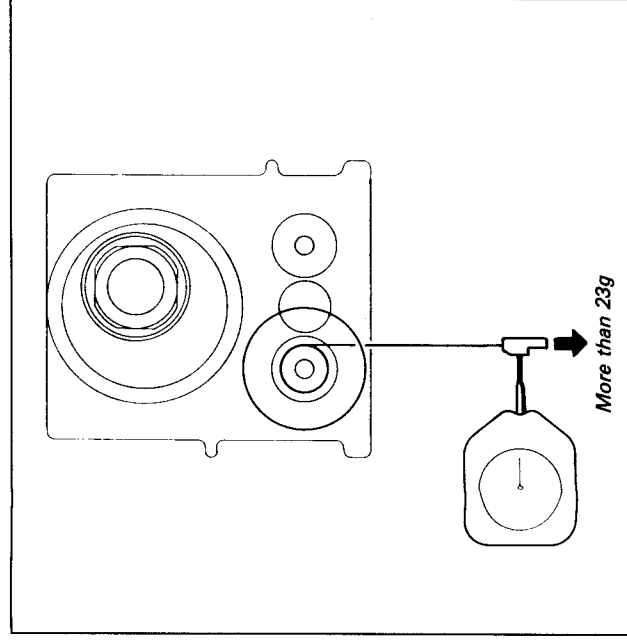


Fig. 7-56.

2. T Main Brake Torque (See Fig. 7-57, 7-58.)

- 1) Set to **FF/REW** mode.
- 2) Place the tension measurement reel (Ref. No. J-8) on the T reel table.
- 3) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are satisfied.

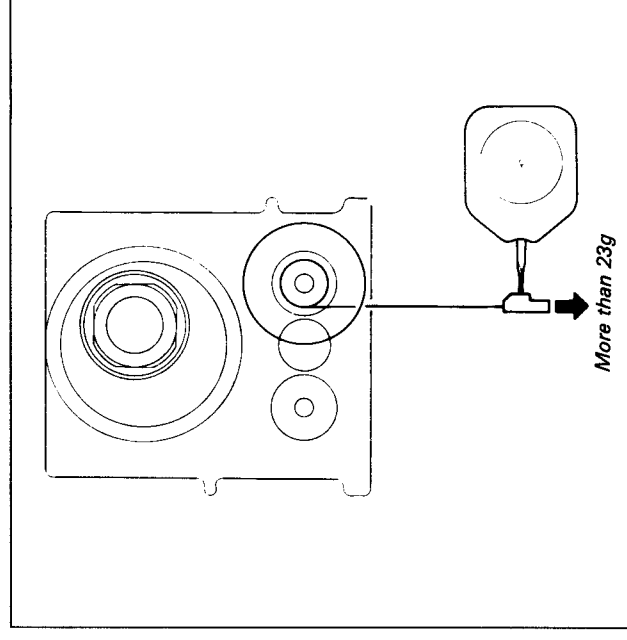


Fig. 7-57.

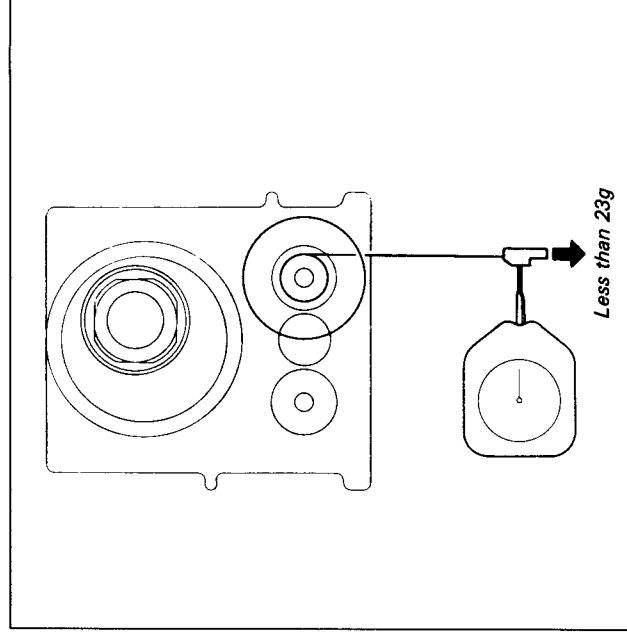


Fig. 7-58.

7-3-24. Check of S and T Soft Brake Torque

- 1) Remove the front panel according to Section 2, 2-2.
- 2) Remove the cassette compartment assembly according to Section 2, 2-14.

1 S Soft Brake Torque (See Fig. 7-59.)

- 1) Set to **FF/REW** mode.
- 2) Place the tension measurement reel (Ref. No. J-8) on the S reel table.
- 3) Release the S main brake with a finger.
- 4) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are satisfied.

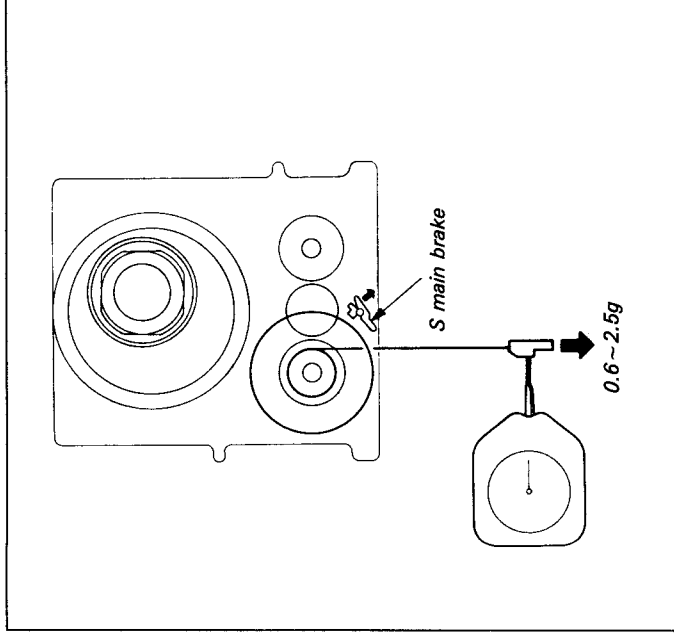


Fig. 7-59.

2. T Soft Brake Torque (See Fig. 7-60.)

- 1) Set to **REV** mode.
- 2) Place the tension measurement reel (Ref. No. J-8) on the T reel table.
- 3) Release the T main brake with a finger.
- 4) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are satisfied.

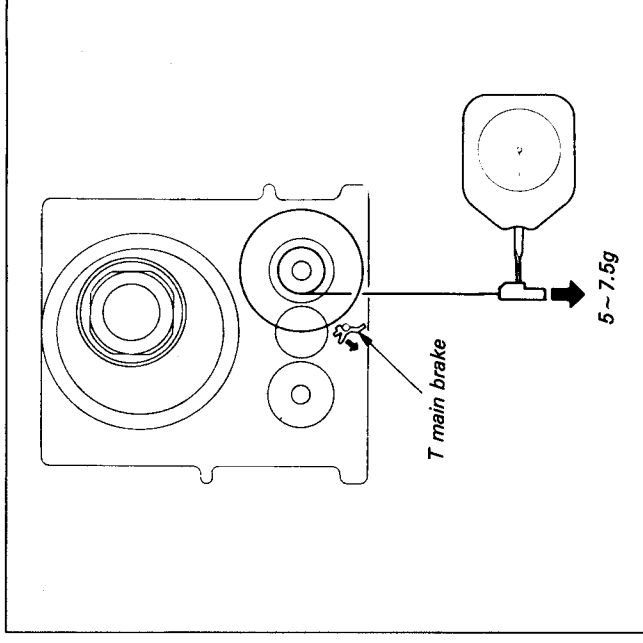


Fig. 7-60.

7-3-25. Check of REV and REW Brake Torque

- 1) Remove the front panel according to Section 2, 2-2.
- 2) Remove the cassette compartment assembly according to Section 2, 2-14.

1. REV Brake Torque (See Fig. 7-61.)

- 1) Set to **REV** mode.
- 2) Place the tension measurement reel (Ref. No. J-8) on the S reel table.
- 3) Release the S main brake with a finger.
- 4) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are satisfied.

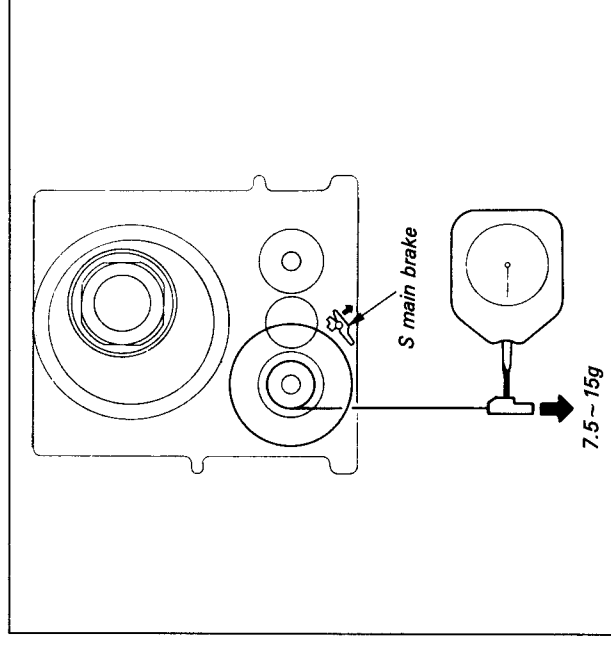


Fig. 7-61.

2. REW Brake Torque (See Fig. 7-62.)

- 1) Set to **FF/REW** mode.
- 2) Place the tension measurement reel (Ref. No. J-8) on the T reel table.
- 3) Release the T main brake with a finger.
- 4) Pull the dial tension gauge (Ref. No. J-6) in the direction of the arrow and confirm that the value are met.

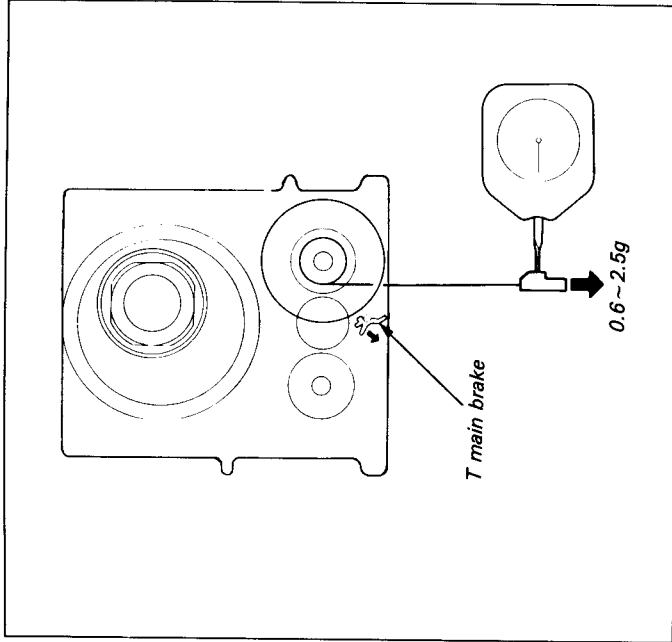


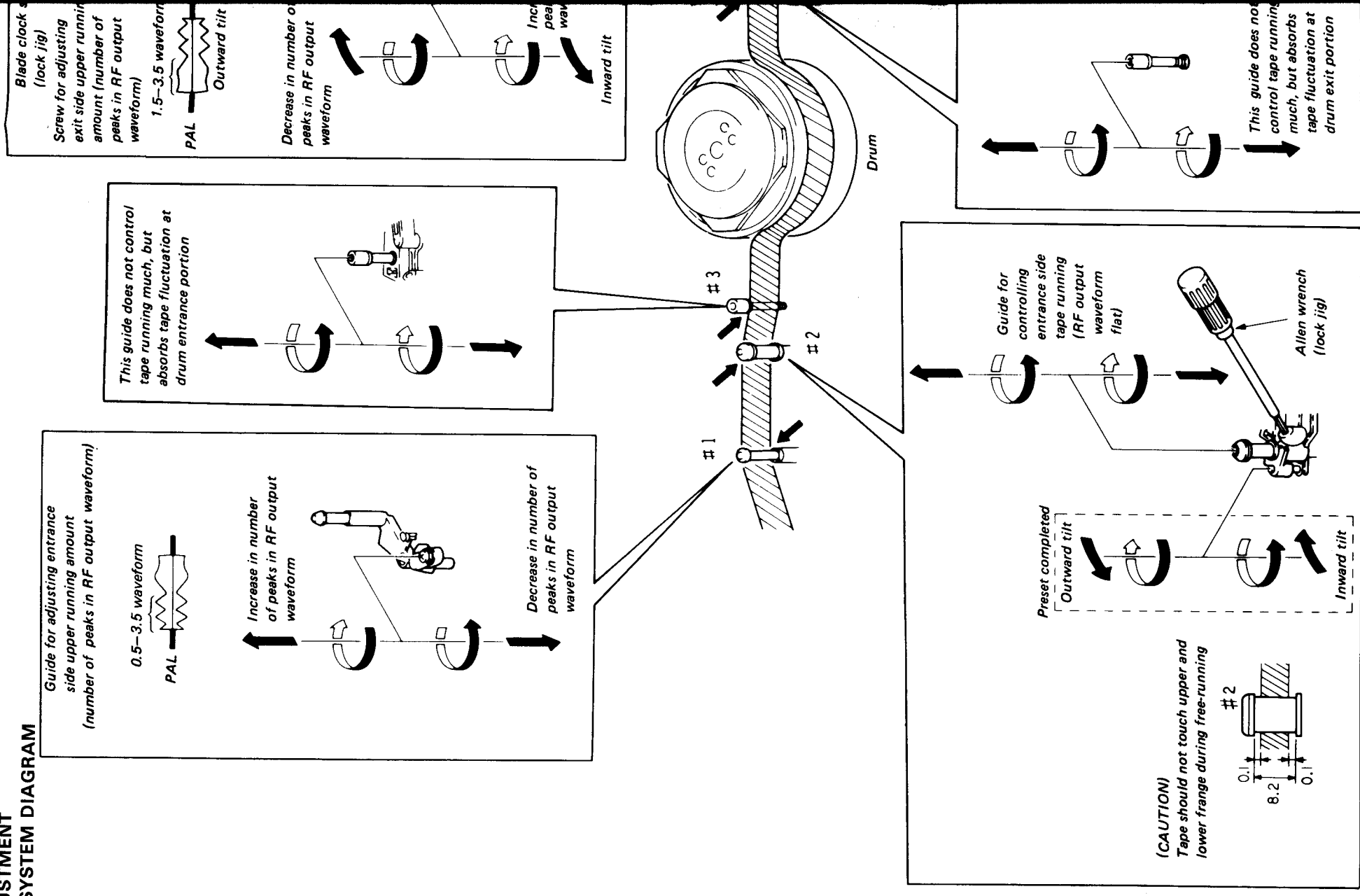
Fig. 7-62.

7-3-26. Check by FWD, RVS Take-up Torque

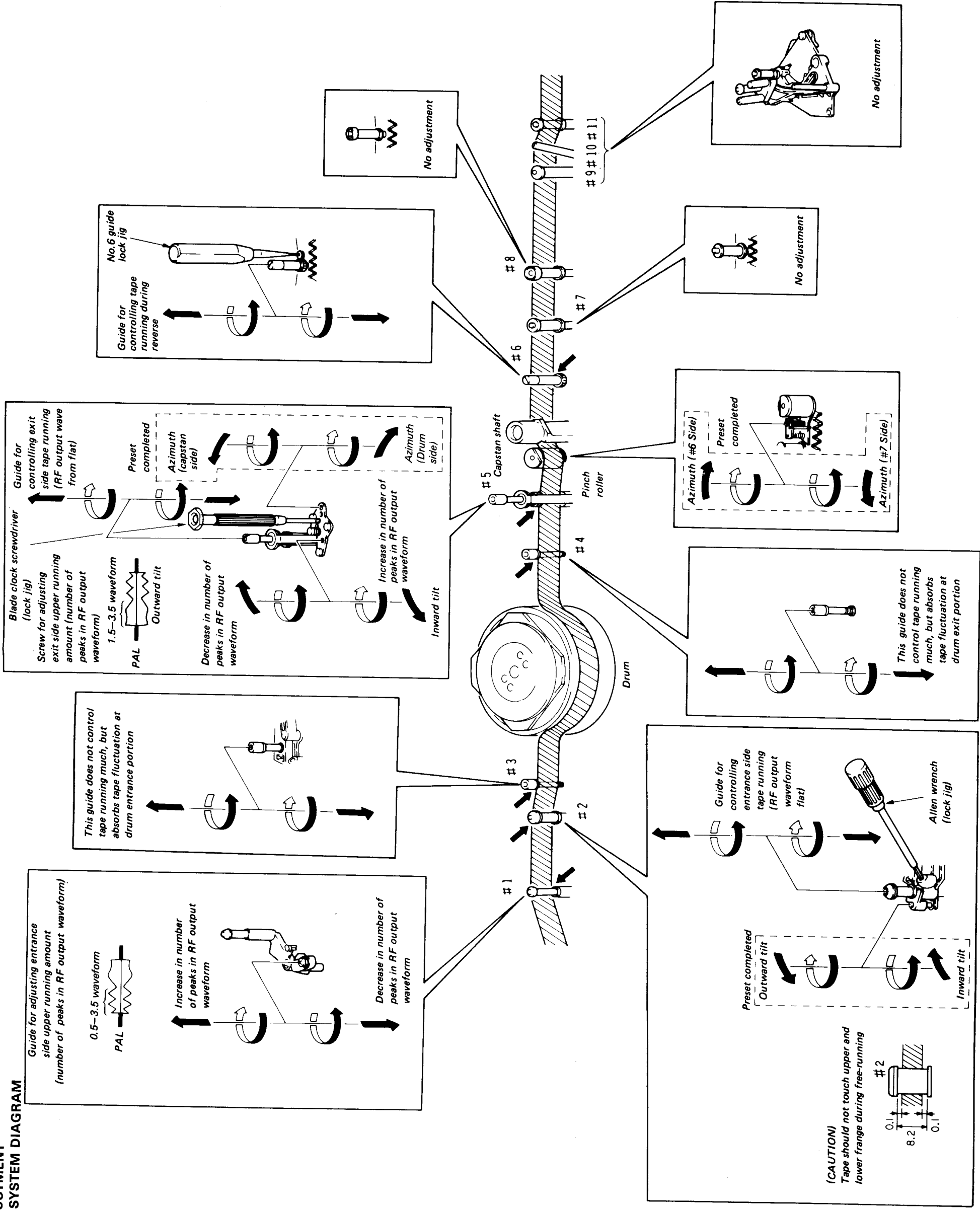
Cassette

- 1) Insert the FWD, RVS take-up torque cassette (Ref. No. J-12).
- 2) Set for playback mode and confirm that T reel table torque is $9.5 \sim 15.5 \text{ g} \cdot \text{cm}$.
- 3) Set for playback mode, and check that the S reel torque immediately after the REW button is pressed is $17 \sim 23 \text{ g} \cdot \text{cm}$.
- 4) Replace the appropriate reel table if the above value are not satisfied.

7-4. TAPE PATH ADJUSTMENT TAPE RUNNING SYSTEM DIAGRAM



7-4. TAPE PATH ADJUSTMENT TAPE RUNNING SYSTEM DIAGRAM



[REGARDING TRACK SHIFT AND MONITOR JIG]

The video 8 system employs a high precision tracking ATF (auto track finding) and instantaneously controls the tape running speed with the 4 kinds pilot signals. In this way, the tracking adjustment knob becomes unnecessary, and accurate tracking has become possible.

However, on the other hand, there has been difficulty in adjusting the tape path system with the ATF method. It was due to the fact that complete adjustment had been impossible to be performed because even when the tracing of the head had been a slightly off course, the ATF would perform correction automatically.

Because of this, adjustment is carried out to the tape path system by using the track shift & monitor jig (Ref. No. J-6080-851-A). As the track shift and monitor jig forcibly releases the ATF and sets the tracking amount (track shift) manually, the adjustment of the tape path system can easily be carried out.

Perform this adjustment after the electrical adjustment of Section 8 has been completed.

7-4-1. Connection with Track Shift and Monitor Jig

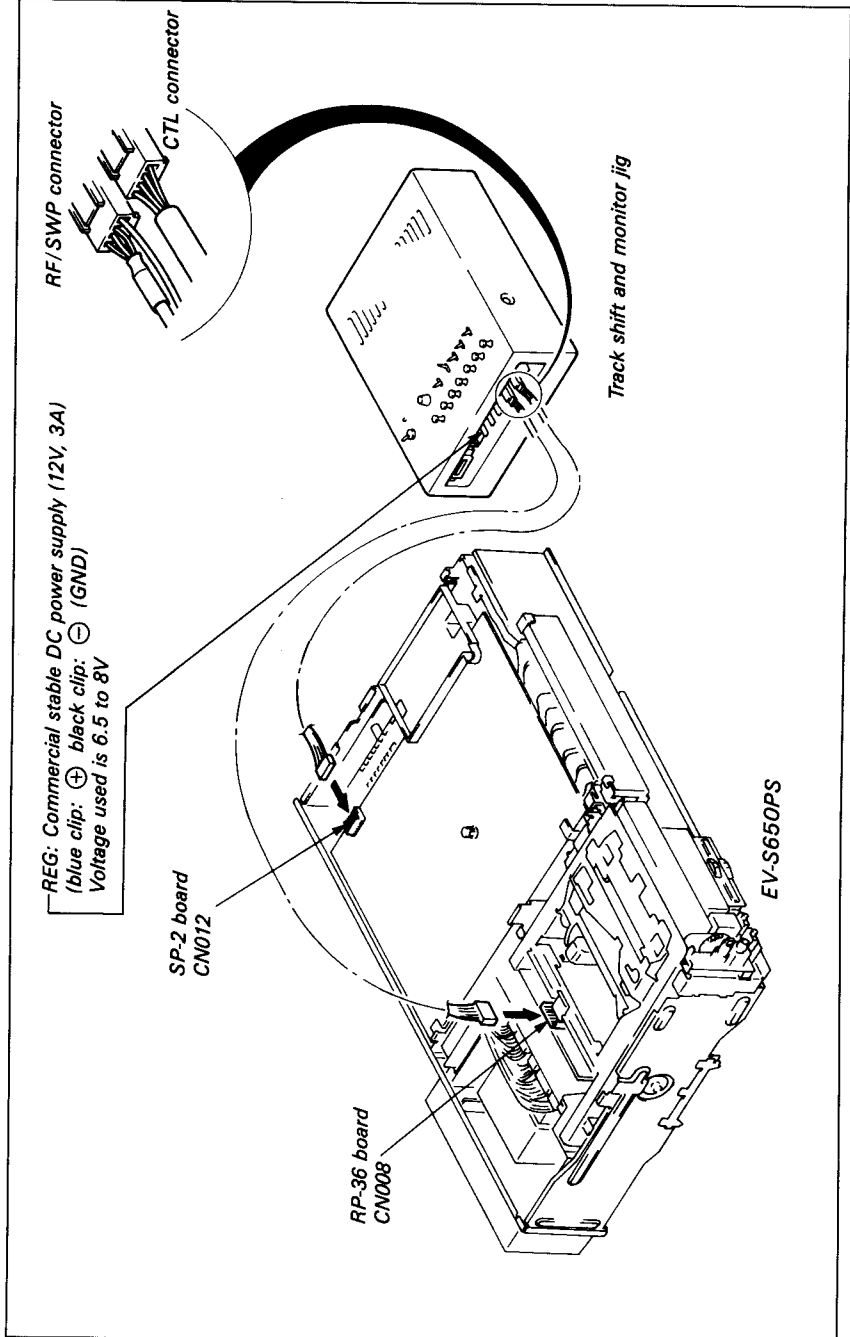


Fig. 7-63.

[Track Shift and Monitor Jig Power Supply]

The track shift & monitor jig has three types of connectors for external power supply, and the following three types of power supply can be used.

| Connector Name | Power Supply |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| SYSTEM CONN | Connect modified CCD-V8E/UB AC adapter AC-V8 E/UB. (Refer to the track shift and monitor jig instruction manual for the modification procedure.) |
| AC ADP | Betamovie AC adapter AC-M100E/UB is connected. |
| REG | Connect commercially sold DC stable power supply of more than 12V3A and use at 6.5~8V. Be sure to make correct ⊕ and ⊖ connections. |

- Two or more types of power supply can not be used at the same time.
- Use the connector supplied with the track shift & monitor jig when connecting.
- Power supplies or voltages other than those given above should not be used.
- When using the modified AC-V8E/UB, the circuit power supply is cut off about 10 seconds after the AC-V8E/UB power switch is turned off.
- Power is not supplied to itself, so be sure to supply AC power to it at the same time.

[Connector Connection]

Connect the track shift & monitor jig as shown in Fig. 7-63. Connect RF/SWP connector to RP-36 board CN008, and the CTL connector to SP-2 board CN012.

[Switch Settings]

SEL switch: Set to ON when doing track shift. When OFF, control is from side.
PATTERN switch: Set to EV side.
ATF LOCK: Set to OFF.
Other switches are not used during adjustment.

7-4-2. Preparation for Adjustment

- 1) Perform cleaning of the tape running surface (the individual tape guides, drum, capstan shaft and pinch roller).
- 2) Connection of oscilloscope
1ch: CH2 pin (RF signal)
EXT TRIG: RF SWP pin (RF SWP signal)
- 3) Set the SEL switch of the track shift & monitor jig to OFF, then playback the alignment tape (WR5-1C) for tracking, and confirm that the RF waveform of both the entrance and exit sides become flat (Fig. ③ in 7-64.). If the RF waveform of both sides is not flat, the adjustment should be carried out in accordance with the following.
* In case the RF waveform on the entrance side is not flat (Fig. ② in 7-64.) ... Perform the adjustment in Item 7-4-3. Entrance side adjustment.
* In case RF waveform on the exit side is not flat (Fig. ③ in 7-64.) ... Perform the adjustment in Item 7-4-4, Exit Side Adjustment.

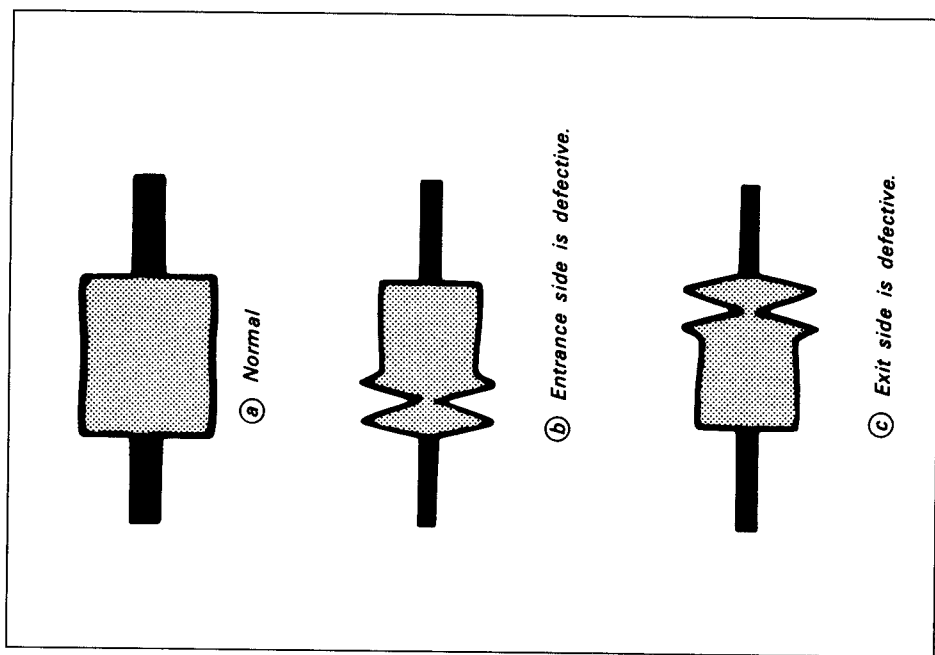


Fig. 7-64.

7-4-3. Entrance

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[Track Shift and Monitor Jig Power Supply]

The track shift & monitor jig has three types of connectors for external power supply, and the following three types of power supply can be used.

| Connector Name | Power Supply |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| SYSTEM CONN | Connect modified CCD-V8E/UB AC adapter AC-V8 E/UB. (Refer to the track shift and monitor jig instruction manual for the modification procedure.) |
| AC ADP | Betamovie AC adapter AC-M100E/UB is connected. |
| REG | Connect commercially sold DC stable power supply of more than 12V3A and use at 6.5~8V. Be sure to make correct ⊕ and ⊖ connections. |

- Two or more types of power supply can not be used at the same time.
- Use the connector supplied with the track shift & monitor jig when connecting.
- Power supplies or voltages other than those given above should not be used.
- When using the modified AC-V8E/UB, the circuit power supply is cut off about 10 seconds after the AC-V8E/UB power switch is turned off.
- Power is not supplied to itself, so be sure to supply AC power to it at the same time.

[Connector Connection]

Connect the track shift & monitor jig as shown in Fig. 7-63. Connect RF/SWP connector to RP-36 board CN008, and the CTL connector to SP-2 board CN012.

[Switch Settings]

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PATTERN switch: Set to EV side.
ATF LOCK: Set to OFF.
Other switches are not used during adjustment.

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- 1) Perform cleaning of the tape running surface (the individual tape guides, drum, capstan shaft and pinch roller).
- 2) Connection of oscilloscope
1ch: CH2 pin (RF signal)
EXT TRIG: RF SWP pin (RF SWP signal)
- 3) Set the SEL switch of the track shift & monitor jig to OFF, then playback the alignment tape (WR5-1C) for tracking, and confirm that the RF waveform of both the entrance and exit sides become flat (Fig. ③ in 7-64.). If the RF waveform of both sides is not flat, the adjustment should be carried out in accordance with the following.
* In case the RF waveform on the entrance side is not flat (Fig. ① in 7-64.) ... Perform the adjustment in Item 7-4-3. Entrance side adjustment.
* In case RF waveform on the exit side is not flat (Fig. ② in 7-64.) ... Perform the adjustment in Item 7-4-4, Exit Side Adjustment.

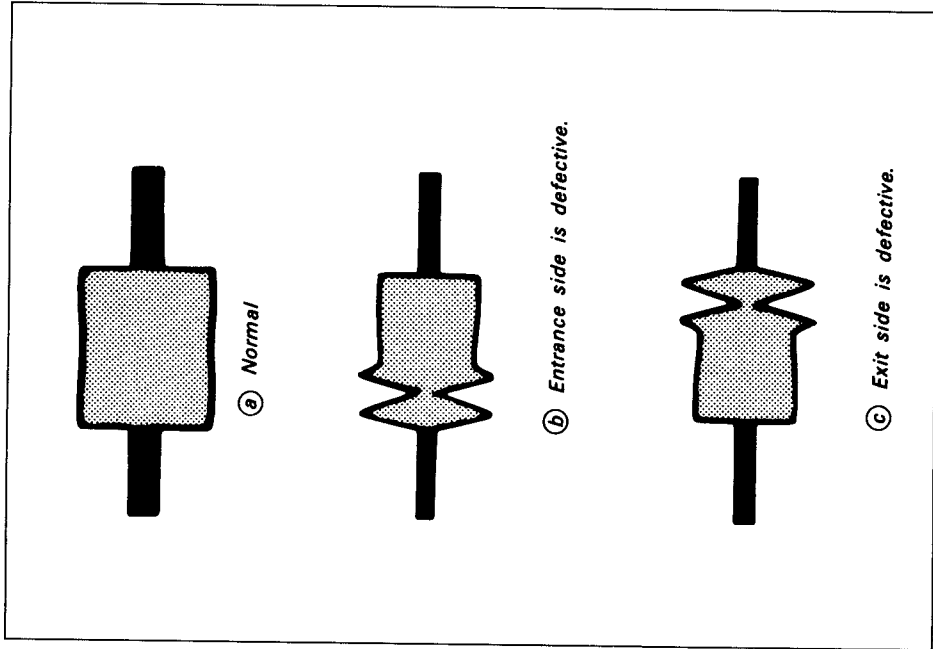


Fig. 7-64.

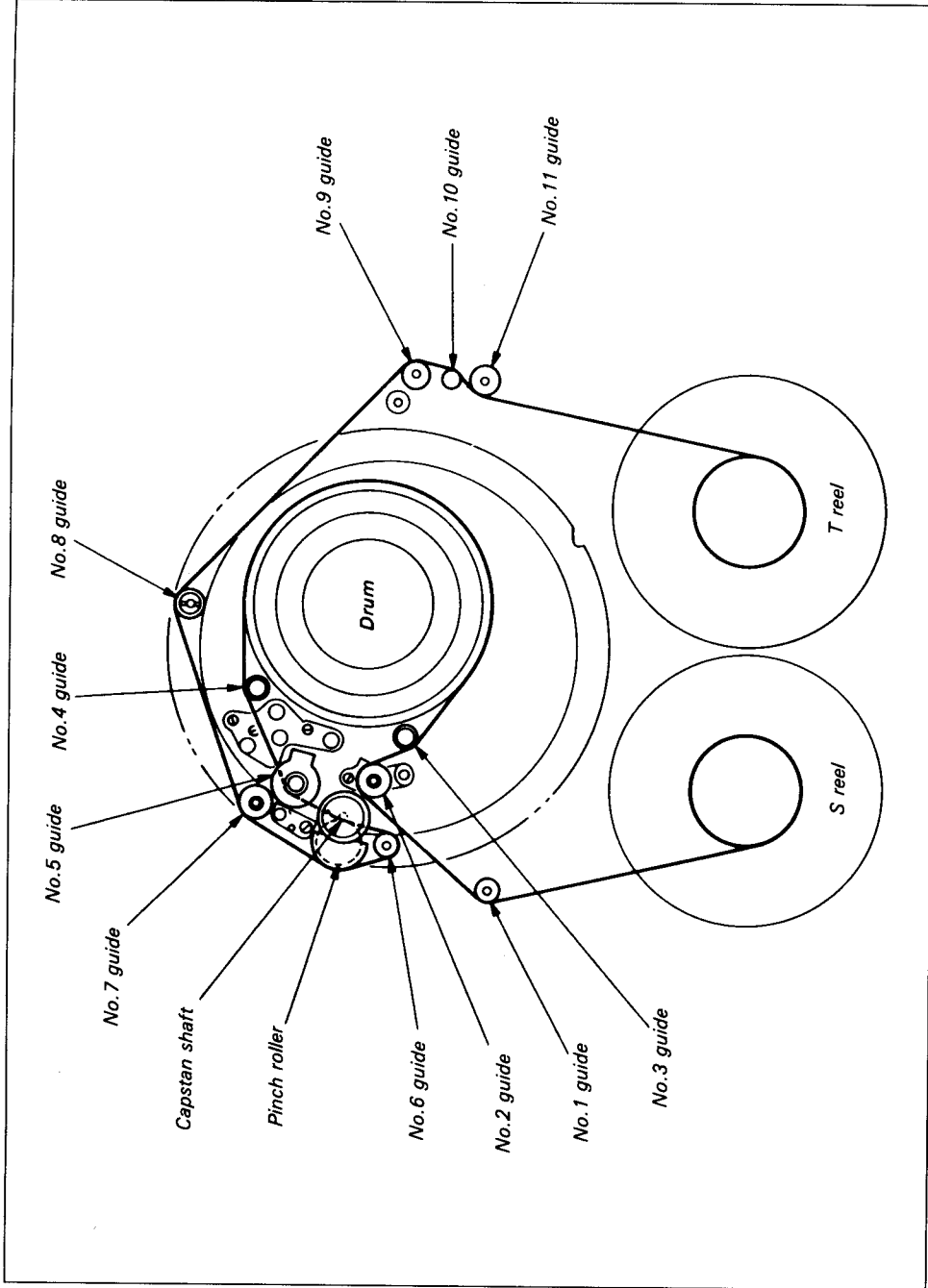


Fig. 7-65. Tape guide arrangement diagram

7-4-3. Entrance Side Adjustment

- 1) Playback the tracking alignment tape (WR5-1C) and loosen No.2 guide lock screw ①, and rotate No.2 and No.3 guides counterclockwise to free tape running on the entrance side. (See Fig. 7-66.)

Note: Since the space between the top and bottom flanges of No.2 guide is narrow, confirm that the tape is contacting neither top nor bottom flanges at this point. If No.2 guide is loosened excessively, the tape contacts the bottom flange and the RF waveform on the entrance side ceases to be the original free waveform.

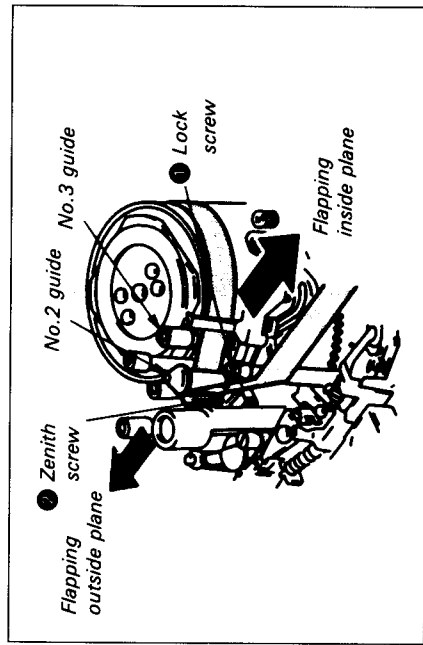


Fig. 7-66 (a).

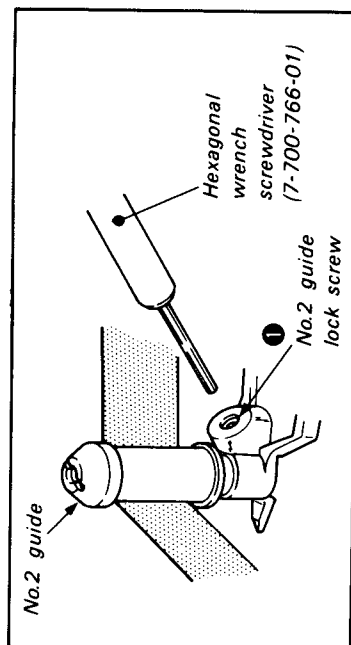


Fig. 7-66 (b).

- 2) Confirm that RF waveform on the entrance side has 0.5 to 3.5 peaks in this condition. If not, adjust as follows. (See Fig. 7-67.)

[less the 0.5 peak]

Adjust the No.2 guide zenith screw ② by turning it counterclockwise 90° at a time. (See Fig. 7-66(a).)

[more than 3.5 peaks]

Adjust the height adjustment screw of No.1 guide (tension regulator assembly) by turning it counterclockwise 90° at a time. (See Fig. 7-68.)

- 3) Slowly rotate the No.2 guide clockwise to make the entrance side waveform approximately flat. (See Fig. 7-69)

Note: Do not rotate No.2 guide excessively.

- 4) Set the SEL switch of the track shift & monitor jig to ON, then turn the track shift knob until the RF waveform amplitude is 2/3. (See Fig. 7-70.)
- 5) Turn No.2 guide so that the entrance side waveform flattens slightly. (See Fig. 7-71.)
- 6) Flatten the waveform with No.3 guide. (See Fig. 7-72.)
- 7) Tighten No.2 lock screw ①. (See Fig. 7-66 (b).)

Note: Be sure to perform checking in accordance with 7-4-5. after making the adjustment.

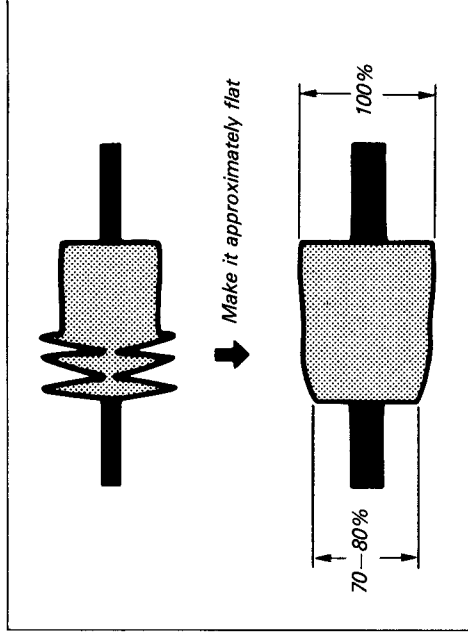


Fig. 7-69.

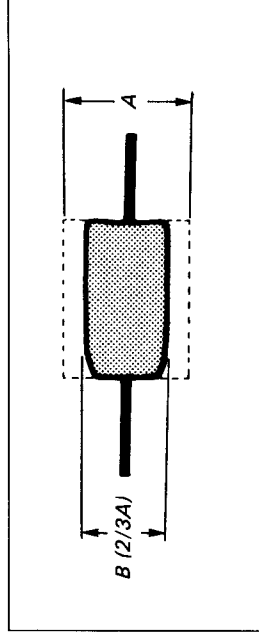
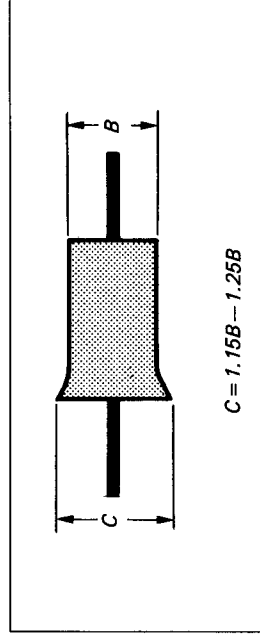


Fig. 7-70.



$$C = 1.15B - 1.25B$$

Fig. 7-71.

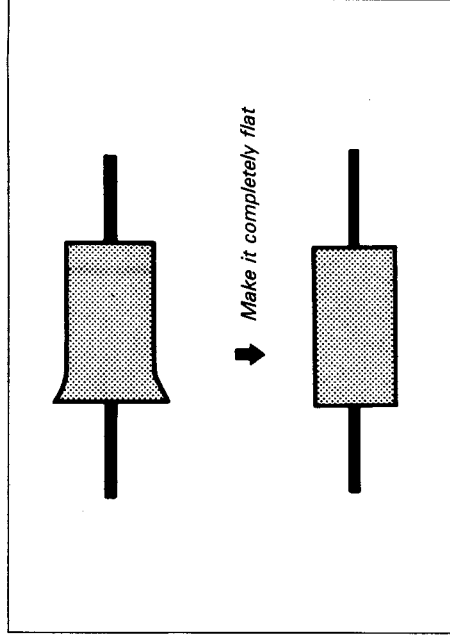


Fig. 7-72.

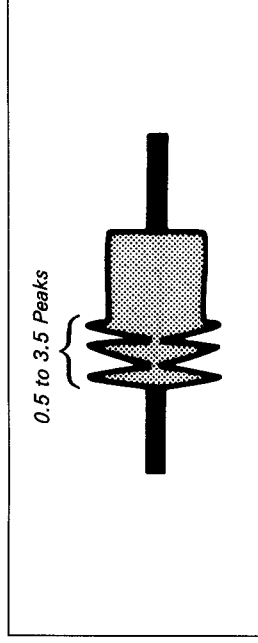


Fig. 7-67.

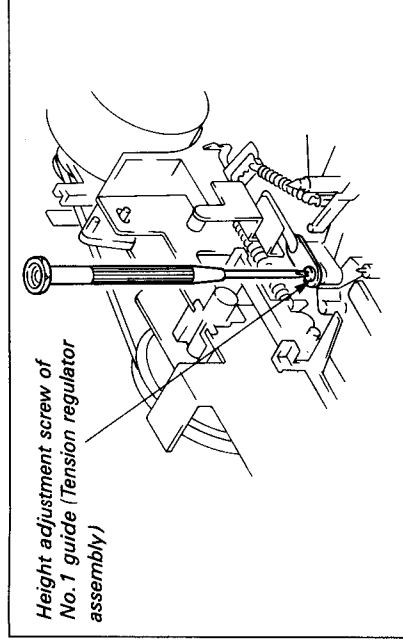


Fig. 7-68.

7-4-4. Exit Side Adjustment

- 1) Playback the alignment tape (WR5-1C) for tracking. Rotate No.4 guide counterclockwise and No.5 guide clockwise in order to make the tape running on the exit side free. (See Fig. 7-73.)

Note: • If screw lock is stuck to the No.5 guide nut, it may prevent the nut from rotating. Rotate the guide after immersing the nut thread into alcohol and to dissolve the screw lock agent.

- Check that the tape is not contacting the top and bottom of flanges of No.5 guide during free tape running.

- 2) Check that the RF waveform on the exit side has 1.5 to 3.5 peaks. If not, readjust as follows: (See Fig. 7-74.)

If off standard

- i) Rotate the lock screw ❶ counterclockwise to loosen.
- ii) Slowly rotate the zenith screw ❷ 45° at a time and wait until the RF waveform varies.
- iii) Rotate the lock screw ❶ clockwise to tighten. (See Fig. 7-73.)

Note: • The waveform varies if the lock screw is tightened too strongly. Tighten moderately.

- Never rotate the azimuth screw of No.5 guide.
- 3) Rotate No.5 guide counterclockwise to make the RF waveform on the exit side approximately flat. (See Fig. 7-75.)

Note: The waveform reaction is slow against nut rotation. Rotate the nut after the waveform variations are stabilized.

- 4) Set the SEL switch of the track shift & monitor jig to ON, then turn the track shift knob until the RF waveform amplitude is 2/3 (See Fig. 7-76.)

- 5) Turn No.5 guide so that the exit side waveform flats slightly. (See Fig. 7-77.)

- 6) Turn No.4 guide so that waveform flat. (See Fig. 7-78.)
- Note:** Be sure to perform checking in accordance with 7-4-5. after making the adjustment.

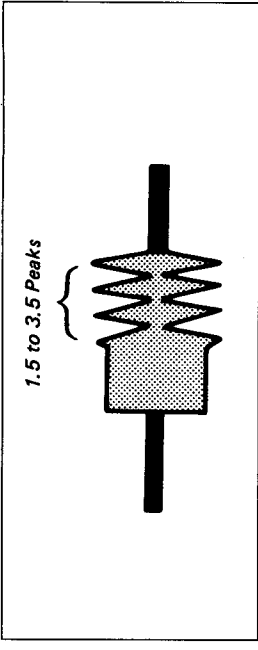


Fig. 7-74.

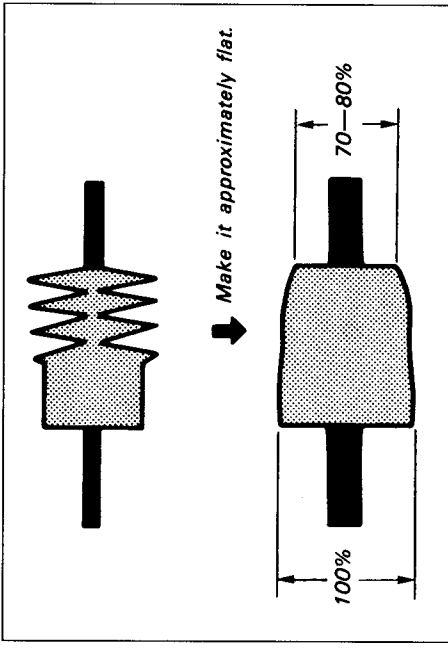


Fig. 7-75.

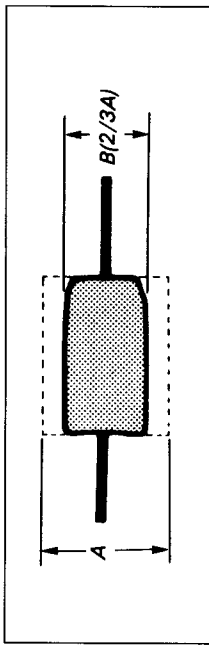


Fig. 7-76.

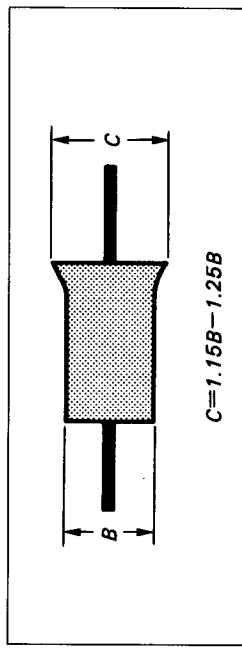


Fig. 7-77.

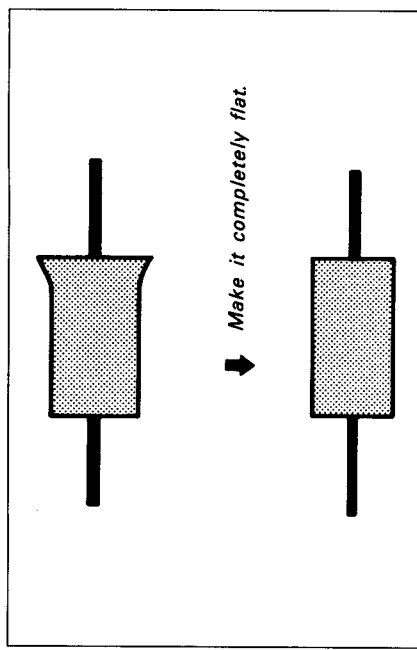


Fig. 7-78.

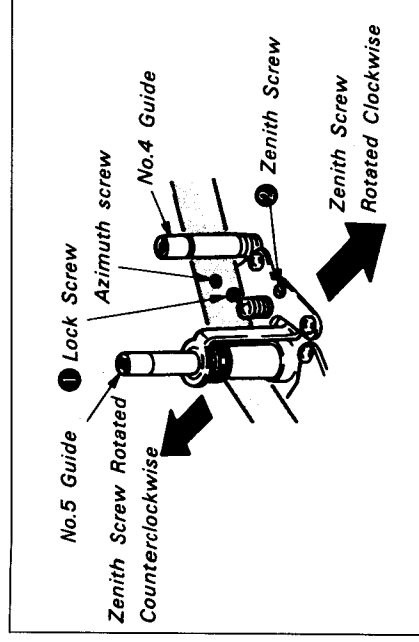


Fig. 7-73.

7-4-5. Checking After Adjustment

1. Tracking check

- 1) Playback the alignment tape (WR5-1C) for tracking.
- 2) Set the SEL switch of the track shift & monitor jig to ON, and turn track shift knob until the RF waveform amplitude is 2/3. (See Fig. 7-79.)

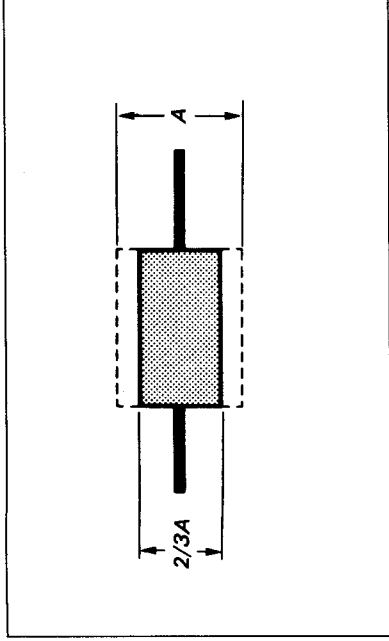


Fig. 7-79.

- 3) Confirm that the RF waveform amplitude minimum value (E min) at this time is more than 80% of maximum value (E max.). (See Fig. 7-80.)

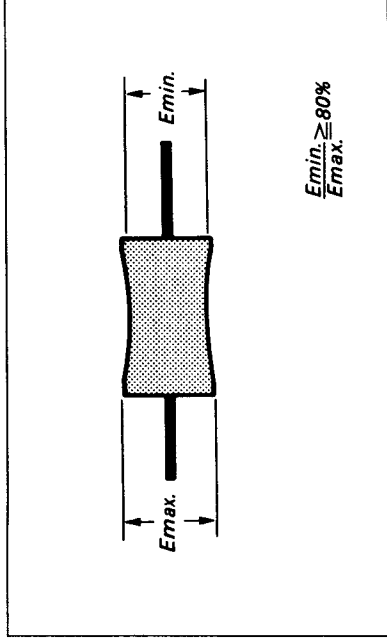


Fig. 7-80.

- 4) Check that the fluctuation amount of RF waveform entrance and exit sides both is as shown in Fig. 7-81.

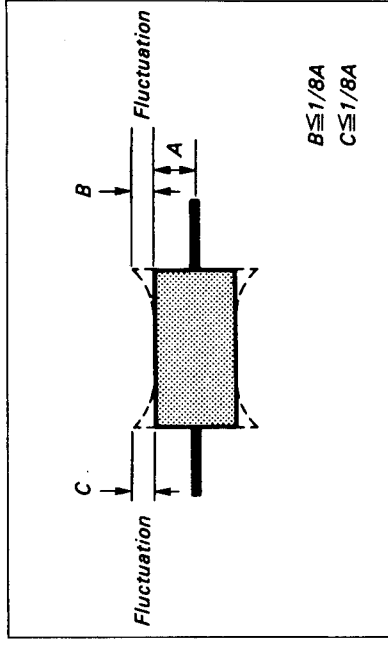


Fig. 7-81.

- 5) Set the SEL switch of the track shift & monitor jig to OFF.
- 6) Set up the REV mode and confirm that the waveform noise pitches are uniform. If not adjust as follows. (See Fig. 7-82.)

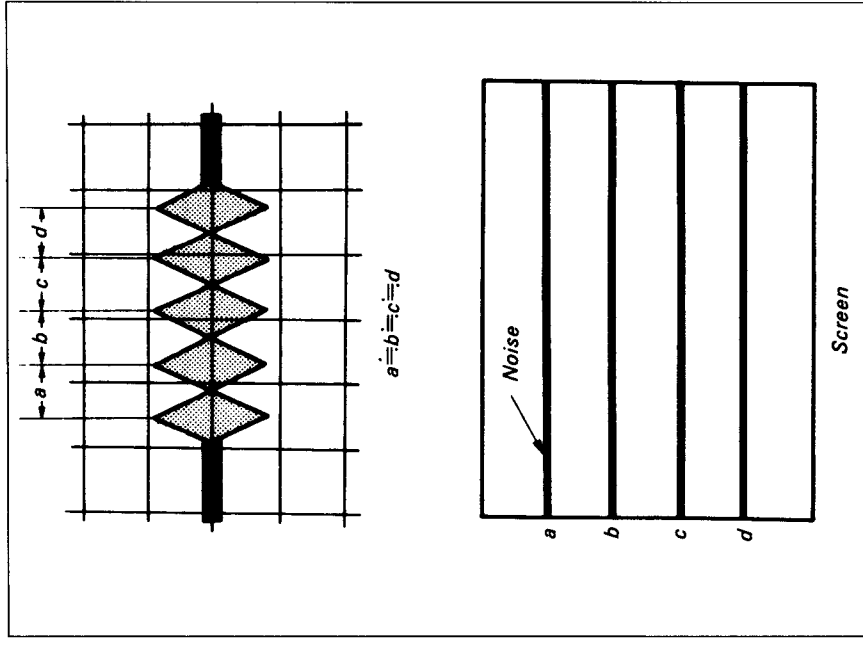


Fig. 7-82.

[Narrow noise pitch on entrance side (upper screen)]

(See Fig. 7-83.)

Confirm that the RF waveforms are flat in the PLAYBACK mode.

Waveform is not flat:

Adjust the heights of No.2 and 3 guides as in 7-4-3. Entrance Side Adjustment.

Waveform is flat:

Check again by performing No.1 guide height and No.2 guide zenith adjustment according to 7-4-3. Entrance Side Adjustment.

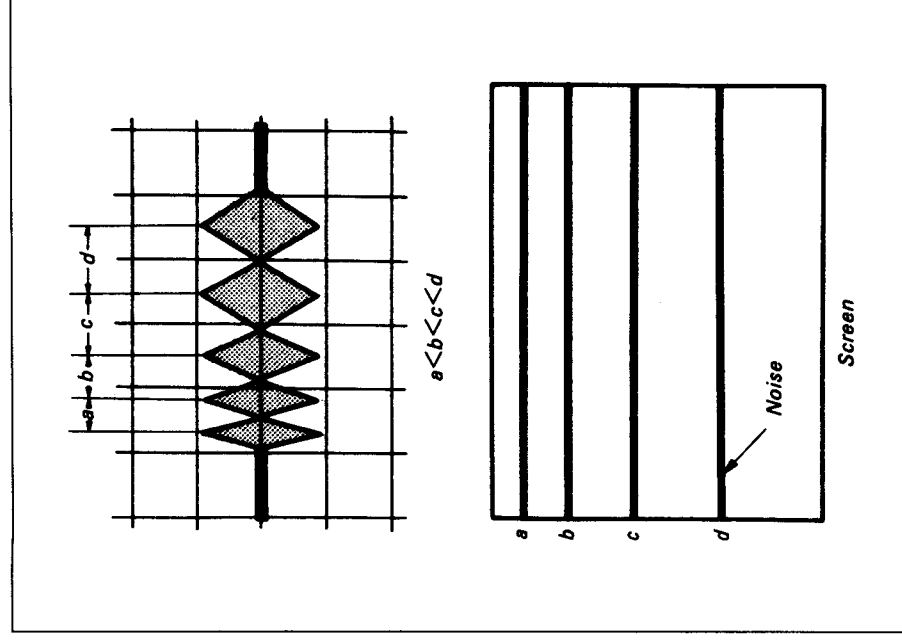


Fig. 7-83.

[Narrow noise pitch on exit side (lower screen)]

(See Fig. 7-84.)

Set up the PLAYBACK mode and adjust No.4 and 5 guide heights in accordance with 7-4-4. Exit Side Adjustment.

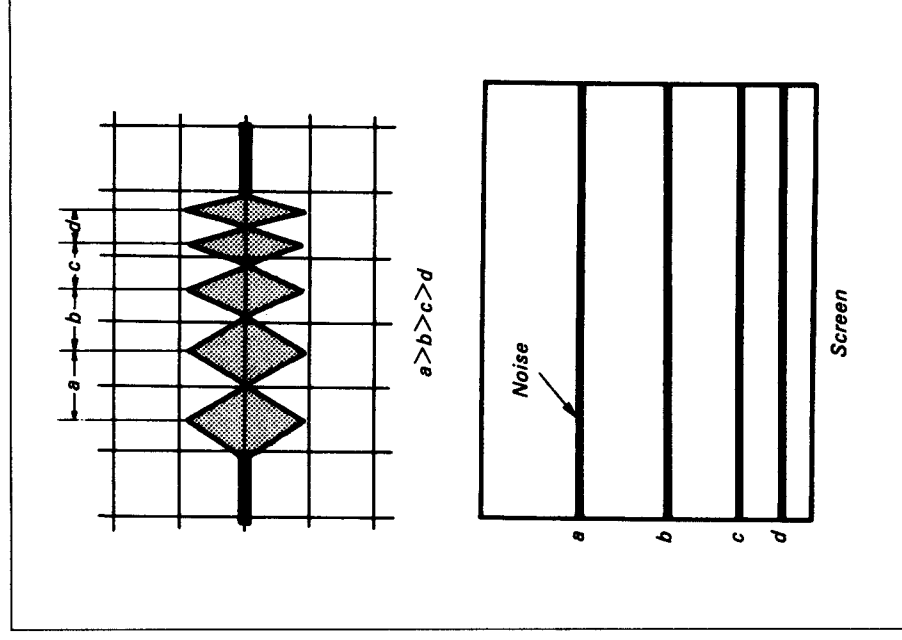


Fig. 7-84

[Wide noise pitch on exit side (lower screen)]

(See Fig. 7-85.)

Set up the PLAYBACK mode and confirm that the RF waveform is flat.

Waveform is not flat:

Adjust height of No.4 and 5 guides in accordance with 7-4-4. Exit Side Adjustment.

Waveform is flat:

Rotate the guide lower toothed wheel counterclockwise with No.6 guide lock jig (Ref. No. J-11) to loosen the toothed wheel. Rotate No.6 guide counterclockwise 45° to tighten the lower toothed wheel. Confirm the RF waveform of the REV mode again. (See Fig. 7-86.)

Note: Wrinkles may be caused in Part A between the capstan spindle and No.5 guide, if No.6 guide is raised excessively. Confirm that no wrinkles have been caused. (See Fig. 7-87.)

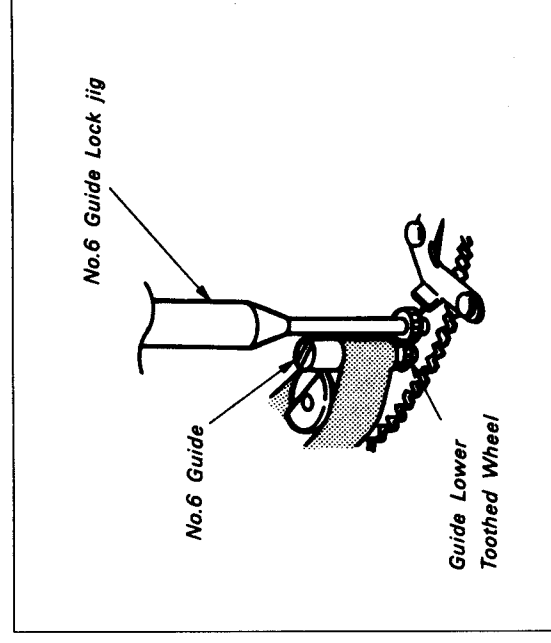


Fig. 7-86.

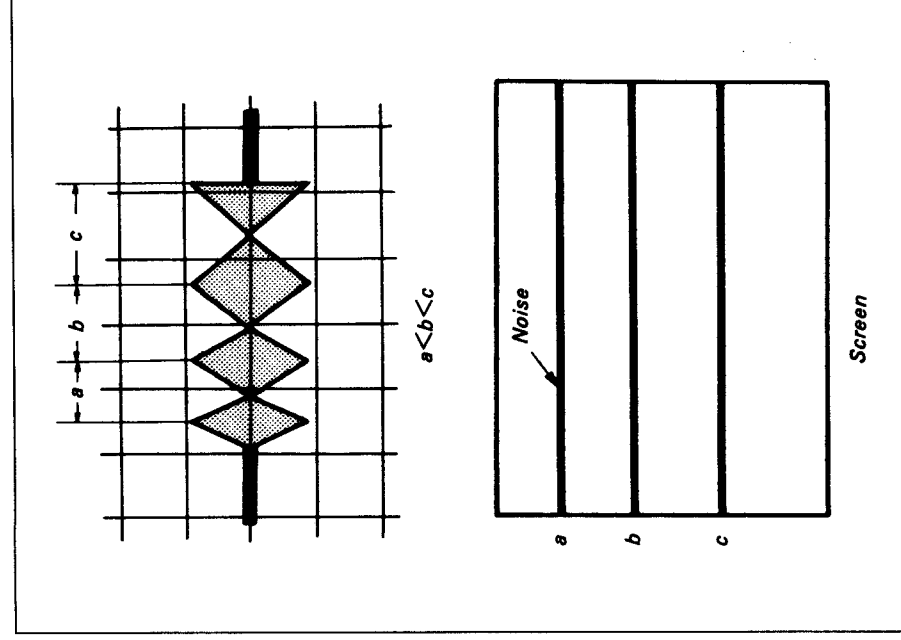


Fig. 7-85.

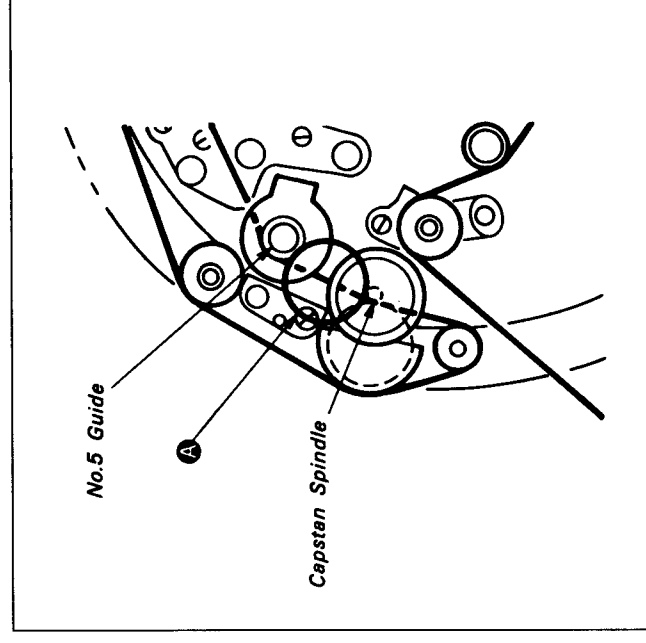


Fig. 7-87.

2. Checking rising edge

- 1) Check that the RF waveform rises horizontally during playback after finishing loading, after CUE/REV, and during playing back after FF. If not, adjust as follows.

[Noise emits from the exit side (lower screen) with rising during playback after finishing loading]
(See Fig. 7-88.)

Check that the FWD back tension is not too low.

If too low:

Readjust as instructed in 7-3-21. FWD Back Tension Adjustment.

If normal:

Rotate the azimuth screw of the pinch roller clockwise 5° at a time and adjust after rechecking the rising edge. (See Fig. 7-89.)

[Noise emits from the exit side (lower screen) with rising during playback after REV]
(See Fig. 7-88.)

Loosen the guide lower toothed wheel of No.6 guide using No.6 guide lock jig, rotate No.6 guide 90° counterclockwise to tighten the toothed wheel, then recheck the rising edge.

Note: Wrinkles may be caused in Part A of Fig. 7-87, if No.6 guide is raised excessively at this time, between the capstan spindle and No.5 guide, so check that no wrinkles are caused.

[Noise emits from the exit side (lower screen) with rising during playing back after FF]
(See Fig. 7-88.)

Confirm that the FWD back tension is not too low.

If too low:

Readjust as required in 7-3-21. FWD Back Tension Adjustment.

If normal:

Remote the azimuth screw of the pinch roller clockwise by 5° at a time and adjust after checking the rising edge. (See Fig. 7-89.)

Note: Be sure to check play rising after finishing loading in case an adjustment is made.

3. Tape running check

In PLAYBACK and REV modes, there should be no spaces and curl should be within 0.3 mm for No.1, 2 and 5 guides at No.1 — No.6 guide flanges (Fig. 7-90.). Check also that there is no space or curl at No.3, 4 and 6 guides.

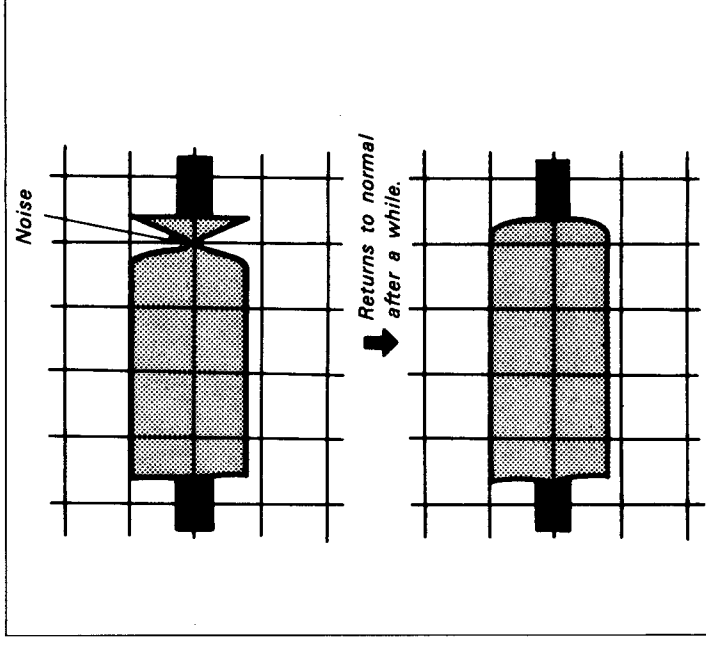


Fig. 7-88.

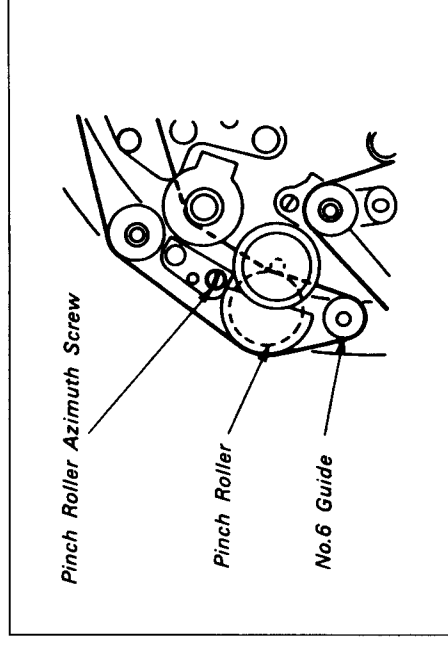


Fig. 7-89.

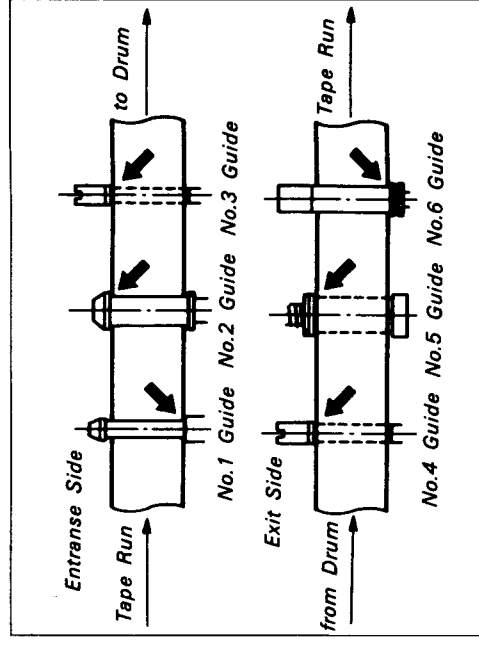


Fig. 7-90.

SECTION 8 ELECTRICAL ADJUSTMENT

During the adjustment, see the parts arrangement diagram relevant to the adjustment on page 326.

The following measuring instruments are needed for electrical adjustment.

[Equipment]

- 1) Monitor TV
- 2) Oscilloscope, dual trace, band 10 MHz or wider, with delay mode (Use a 10:1 probe unless otherwise specified)
- 3) Frequency counter
- 4) PAL pattern generator
- 5) Digital voltmeter
- 6) Audio generator
- 7) Audio level meter
- 8) Audio distortion meter
- 9) Audio attenuator
- 10) Alignment tapes

Tracking adjustment (WR5-1C)

Parts code: 8-967-995-06

Video frequency response adjustment (WR5-2C)

Parts code: 8-967-995-16

Operation check (WR5-3CL)

Parts code: 8-967-995-36

Operation check (WR5-3CSP)

Parts code: 8-967-995-27

[Equipment Connection]

Unless otherwise specified, adjustment is made by connecting the measuring instruments as shown below.

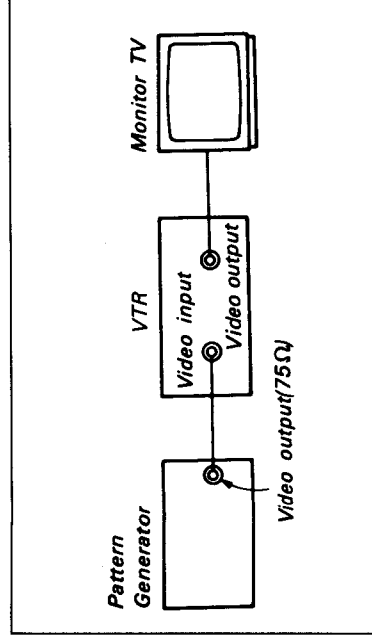


Fig. 8-1.

Setting up during adjustment

Video signals output by a pattern generator are used as adjustment signals when making the electrical adjustments, and these video output signals should be within the required standard. Connect an oscilloscope CNJ002 (VIDEO IN) on the VI-20 Board. Check that the amplitudes of video signal SYNC signals, picture portions, and burst signals are flat at approximately 0.3, 0.7, and 0.3V, respectively, and that the level ratio of the burst signal and "red" signal is 0.30:0.66. Fig. 8-2. shows video signals (colour bars) used in making the electrical adjustment.

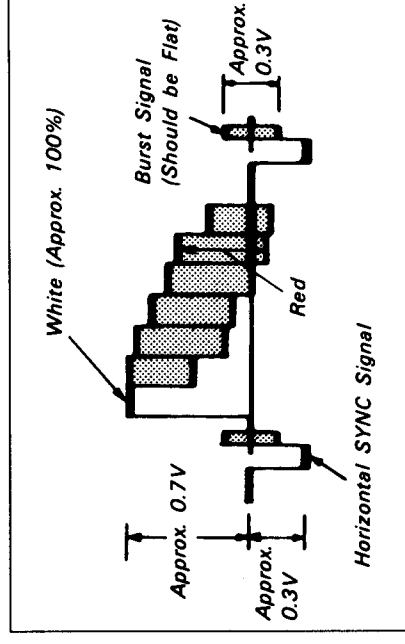
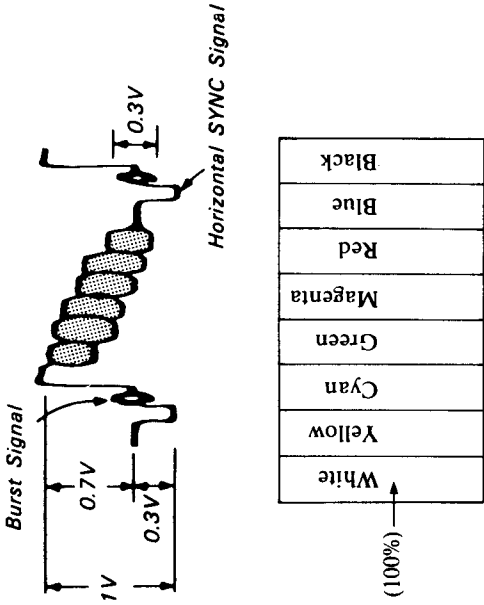


Fig. 8-2.

[Alignment tape]

| Tape | Content | Use | | | | | | | | | | | | |
|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------|-------|------|-------|------|-------|-------|------|-------|---------|------|-----------------|
| Tracking (WR5-1C) | <ol style="list-style-type: none"> 1. Recording area: PCM — video 2. Recording content: CH2: 1 MHz linearity adjustment signal (CH1: 9 MHz) | Drum linearity adjustment | | | | | | | | | | | | |
| Video Frequency Response (WR5-2C) | <ol style="list-style-type: none"> 1. Recording area: Video 2. Recording content: RF sweep 0 to 10 MHz 3. Marker: 1, 3.58, 5.5 and 7 MHz | Frequency response adjustment | | | | | | | | | | | | |
| Operation Check SP mode WR5-3CSP LP mode (WR5-3CL) | <ol style="list-style-type: none"> 1. Recording area: Video, PCM 2. Recording content: <ul style="list-style-type: none"> ■ Video area ● Video signals <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>(Colour bars)</p>  </div> <div style="text-align: center;"> <p>Iterative</p> <table border="1"> <tr> <td>1kHz</td> <td>0dBs</td> <td>10sec</td> </tr> <tr> <td>20Hz</td> <td>-6dBs</td> <td>2sec</td> </tr> <tr> <td>400Hz</td> <td>-6dBs</td> <td>4sec</td> </tr> <tr> <td>14kHz</td> <td>-0.7dBs</td> <td>2sec</td> </tr> </table> </div> </div> | 1kHz | 0dBs | 10sec | 20Hz | -6dBs | 2sec | 400Hz | -6dBs | 4sec | 14kHz | -0.7dBs | 2sec | Operation check |
| 1kHz | 0dBs | 10sec | | | | | | | | | | | | |
| 20Hz | -6dBs | 2sec | | | | | | | | | | | | |
| 400Hz | -6dBs | 4sec | | | | | | | | | | | | |
| 14kHz | -0.7dBs | 2sec | | | | | | | | | | | | |

Input/output level and impedance

Video input Phono jack

Input signals: 1 Vp-p, 75Ω unbalanced, sync negative

Video output Phono jack

Output signals: 1 Vp-p, 75Ω unbalanced, sync negative

Audio input Phono jack

Input level: -10dBs (0dBs=0.775 Vrms)

Input impedance: 47kΩ or higher

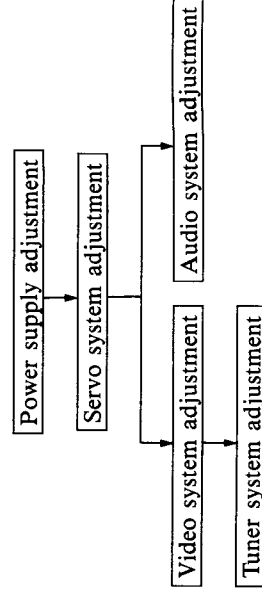
Audio output Phono jack

Regulated output: -10dBs (at load impedance 47kΩ)

Load impedance: More than 10kΩ

Adjustment Procedure

Adjust in the following sequence:



8-1. Power Supply Adjustment

8-1-1. Oscillation frequency adjustment (DR-35 board)

| Mode | E-E |
|-----------------------|-------------------|
| Measurement point | Q201 collector |
| Measurement equipment | Frequency counter |
| Adjustment element | RV201 |
| Specified value | 91 ± 2kHz |

[Adjustment method]

- 1) Adjust with RV201 so that it becomes 91 ± 2kHz.

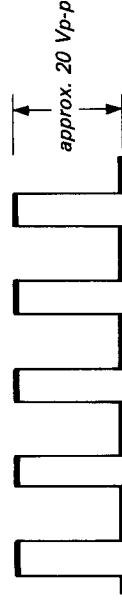


Fig. 8-3.

8-1-2. REG 5V adjustment (DR-35 board)

| Mode | E-E |
|-----------------------|-------------------|
| Measurement point | Pin ③ of CN201 |
| Measurement equipment | Digital voltmeter |
| Adjustment element | RV202 |
| Specified value | 5.3 ± 0.1Vdc |

[Adjustment method]

- 1) Adjust with RV202 so that it becomes 5.3 ± 0.1Vdc.

8-1-3. REG 12V adjustment (DR-35 board)

| Mode | E-E |
|-----------------------|-------------------|
| Measurement point | Pin ① of CN203 |
| Measurement equipment | Digital voltmeter |
| Adjustment element | RV203 |
| Specified value | 12.3 ± 0.3Vdc |

[Adjustment method]

- 1) Adjust with RV203 so that it becomes 12.3 ± 0.3Vdc.

8-1-4. Voltages Check (DR-35, DT-63 Boards)

| Mode | E-E |
|-----------------------|-------------------------------|
| Measurement equipment | Digital voltmeter |
| UNSW 5V Check | |
| Measurement point | Pin ② of CN203 on DR-35 board |
| Specified value | 5.4 ± 0.2Vdc |
| DRIVE 9V Check | |
| Measurement point | Pin ④ of CN202 on DR-35 board |
| Specified value | 9.1 ± 0.2Vdc |
| UNSW 38V Check | |
| Measurement point | Pin ② of CN104 on DT-63 board |
| Specified value | 36.5 ± 0.8Vdc |
| UNSW -30V Check | |
| Measurement point | Pin ④ of CN104 on DT-63 board |
| Specified value | -29 ± 0.8Vdc |
| UNSW 9V Check | |
| Measurement point | Pin ① of CN105 on DT-63 board |
| Specified value | 8.8 ± 0.2Vdc |
| UNSW -9V Check | |
| Measurement point | Pin ③ of CN105 on DT-63 board |
| Specified value | -8.8 ± 0.2Vdc |
| BACK UP 5V Check | |
| Measurement point | Pin ⑦ of CN106 on DT-63 board |
| Specified value | 5.7 ± 0.8Vdc |

[Confirmation method]

Check that each voltage satisfies the specified value.

8-2. SERVO SYSTEM ADJUSTMENT

8-2-1. Reel Bias Adjustment (SP-2 board)

| | | |
|-----------------------|----------------------------------------------------------|--|
| Mode | REC (SP) | |
| Signal | Arbitrary | |
| Measurement point | + : TP210 (Pin ② of CN207) - : TP211 (Pin ① of CN207) | |
| Measurement equipment | Digital voltmeter | |
| Adjustment element | RV209 | |
| Specified value | 1.00 – 0.05Vdc | |

[Adjustment method]

- 1) Set up the REC mode and wait for 5 seconds.
- 2) Adjust with RV209 so that the DC-voltage is 1.00 ± 0.05Vdc.
- 3) Set up the FF mode.
- 4) Check that the DC-voltage is 2.25 ± 0.1Vdc.

8-2-2. REC ATF Level Check (SP-2 board)

| | | |
|-----------------------|------------------------------|--|
| Mode | E-E | |
| Signal | Arbitrary | |
| Measurement point | TP235 (CN214 ⑤ PIN: REC ATF) | |
| Measurement equipment | Oscilloscope | |
| Specified value | 500 ± 50mVp-p | |

[Confirmation method]

- 1) Check that the REC ATF level is 500 ± 50mVp-p.

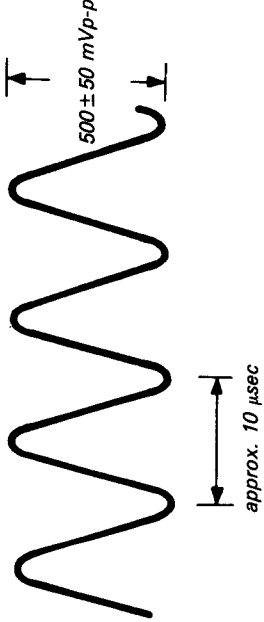


Fig. 8-4.

8-2-3. Drum Free Speed Adjustment (SP-2 Board)

| | | |
|-----------------------|--------------------------|--|
| Mode | REC | |
| Signal | Arbitrary | |
| Measurement point | TP213 (IC212 ⑭ PIN: ADE) | |
| Measurement equipment | Digital voltmeter | |
| Adjustment element | RV202 | |
| Specified value | 1.9 ± 0.1Vdc | |

[Adjustment method]

- 1) Adjust with RV202 so that it becomes 1.9 ± 0.1Vdc.

8-2-4. Capstan Free Speed Adjustment (SP-2 Boards)

| | | |
|-----------------------|-------------------------------------------|--|
| Mode | Playback | |
| Signal | Arbitrary tape | |
| Measurement point | TP202 (IC204 ⑬ PIN: CFG) | |
| Measurement equipment | Frequency counter | |
| Adjustment element | SP mode: RV206 LP mode: RV208 | |
| Specified value | SP mode: 1341 ± 1Hz LP mode: 670 ± 1Hz | |

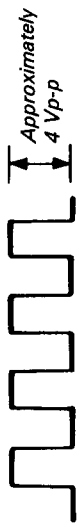
[Connection]

- 1) Connect TP230 (Q704 emitter: PB ATF) and TP002 (GND) with a jumper wire.

[Adjustment method]

The adjustment element of LP mode is shown in parentheses [].

- 1) Set up the SP [LP] mode by the SP/LP button.
- 2) Set up the playback mode.
- 3) Adjust with RV206 [RV208] so that it becomes 1341 ± 1Hz [670 ± 1Hz].



1341 ± 1Hz (SP mode)
670 ± 1Hz (LP mode)

Fig. 8-5.

8-2-5. Switching Position Adjustment (SP-2 Board)

| | |
|-----------------------|------------------------------------------------------------|
| Mode | Playback |
| Signal | Alignment tape: For operation confirmation (WR5-3CSP) |
| Measurement point | CH1: VIDEO OUT terminal CH2: TP207 (IC204 ② PIN: SV RF) |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV201 |
| Specified value | $6.5 \pm 0.3\text{H}$ ($416 \pm 20 \mu\text{sec}$) |

[Adjustment method]

- 1) Adjust with RV201 so that it becomes $6.5 \pm 0.3\text{H}$ ($416 \pm 20 \mu\text{sec}$).

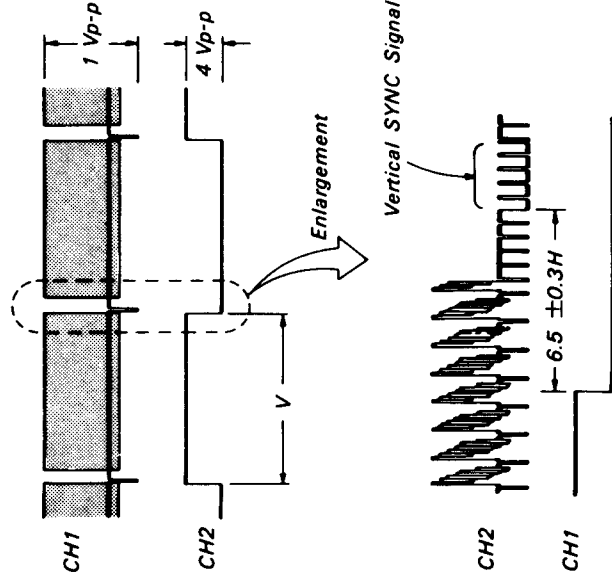


Fig. 8-6.

8-2-6. ATF BPF Balance Adjustment (SP-2 Board)

| | |
|---------------------|---------------------------------------------------|
| Mode | Playback |
| Signal | See Fig. 8-7 |
| Measurement point | TP236 (IC703 ⑨ PIN: ATF ER) |
| Measuring equipment | Oscilloscope. |
| Adjustment element | RV701 |
| Specified value | Minimum level difference of the ATF ERROR signal. |

[Connection 1]

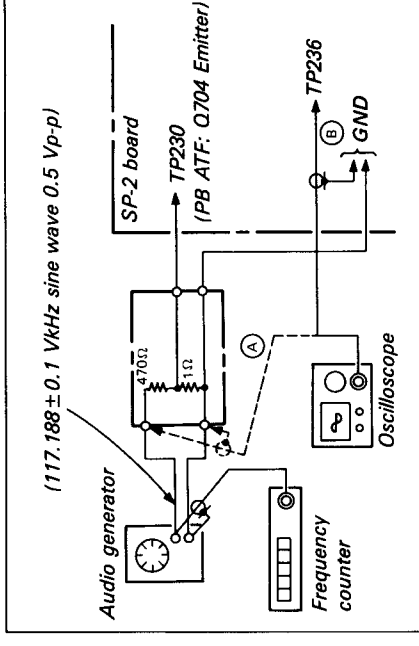


Fig. 8-7.

[Connection 2]

Connect Pin ⑤ of CN012 (P SEL 1) to Pin ① of CN005 (REG 5V) with a jumper wire.

[Adjustment method]

- 1) Check the output level of the audio generator with an oscilloscope and adjust so that the sine wave output level becomes 0.5 Vp-p . (Fig. 8-7 ①)
- 2) Adjust the oscillation frequency of the audio generator so that reading of the frequency counter becomes $117.188 \pm 0.1\text{kHz}$.
- 3) Playback an arbitrary tape.
- 4) Connect an oscilloscope to TP236.
- 5) Adjust with RV701 to eliminate level difference of the ATF ERROR signal.

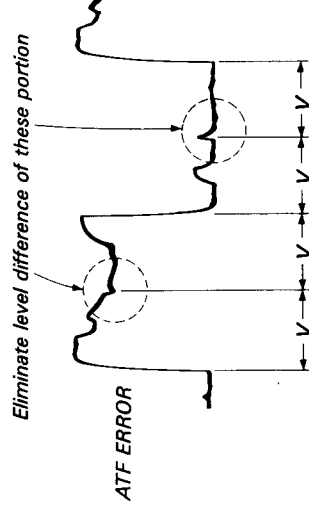


Fig. 8-8.

8-2-7. SLOW TRACKING Adjustment (SP-2 Board)

The adjustment element of LP mode is shown in parenthesis [].

| | |
|-----------------------|------------------------------------------------------------------------------------|
| Mode | SLOW |
| Signal | SP [LP] mode recorded tape |
| Measurement point | TP232 (IC208 ③ PIN: C. ON) |
| Measurement equipment | Oscilloscope • Trigger mode: NORMAL • Trigger slope: + |
| Adjustment element | SLOW/STILL ADJ buttons in the tuner preset compartment (S004, S005 on PR-13 board) |
| Specified value | 38.5 ± 0.5 msec |

[Connection]

Connect TP001 (IC001 ⑨ PIN: EMERG OFF) and TP002 (GND) with a jumper wire to set up the TEST mode.

[Adjustment method]

- 1) Playback the SP [LP] recorded tape.
- 2) Adjust to 38.5 ± 0.5 msec with the SLOW/STILL ADJ buttons.

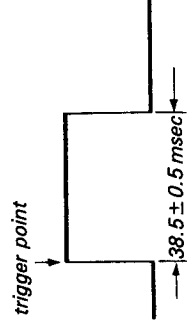


Fig. 8-9.

8-2-8. TRACKING Adjustment (SP-2 Board)

| | |
|-----------------------|------------------------------------------------------------------------------------|
| Mode | Playback |
| Signal | SP mode Self-recorded tape |
| Measurement point | CH1: Pin ③ of CN008 on RP-36 board (SP 1 CH) CH2: TP207 (Pin ② of IC204: SV RF) |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV210 |
| Specified value | Maximum SP 1 channel RF level |

[Adjustment method]

- 1) Maximize the SP 1 channel RF level by turning RV210 slowly.

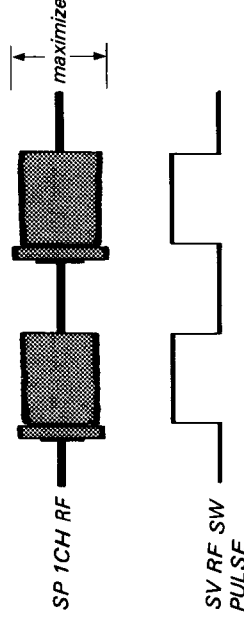


Fig. 8-10.

8-2-9. STILL Adjustment (SP-2 Board)

| | |
|-----------------------|--------------------------------------------------------------------------|
| Mode | STILL |
| Signal | SP mode self-recorded tape |
| Measurement point | CH1: TP207 (Pin ② of IC204: SV RF) CH2: TP228 (Pin ⑧ of IC703: ST ID) |
| Measurement equipment | Oscilloscope. |
| Adjustment element | RV203, RV204 |
| Specified value | 1. 4.8 ± 0.6 msec (RV203) 2. 13.8 ± 0.6 msec (RV204) |

[Adjustment method]

- 1) Rotate the rotor of the capstan motor by your hand and stop it at the position that noise on the monitor screen is hidden into its upper or lower section.
- 2) Adjust to 4.8 ± 0.6 msec with RV203. (See Fig. 8-11.)
- 3) Adjust to 13.8 ± 0.6 msec with RV204. (See Fig. 8-11.)

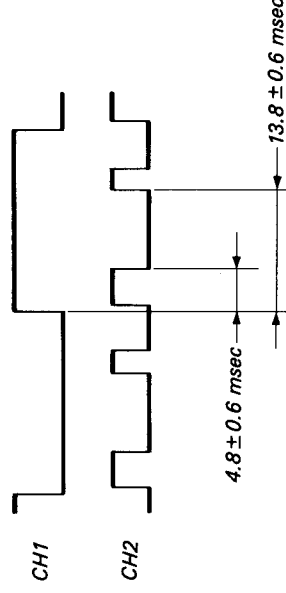


Fig. 8-11.

8-2-10. FORWARD SLOW Adjustment (SP-2 Board)

The adjustment element of LP mode is shown in parentheses [].

| | |
|-----------------------|----------------------------------------------------------------------|
| Mode | FORWARD SLOW |
| Signal | SP [LP] mode self-recorded tape |
| Measurement point | Confirm with monitor TV screen picture |
| Measurement equipment | |
| Adjustment element | RV205 [RV207] |
| Specified value | Be sure that there is no noise and no skew on the monitor TV screen. |

[Adjustment method]

- 1) Adjust with RV205 [RV207] so that noise on the monitor screen is hidden into its upper or lower section.

8-2-11. SLOW fH Adjustment (SP-2 Board)

1. fH Bias Adjustment

The adjustment element of LP mode is shown in parentheses [].

| | |
|-----------------------|---------------------------------|
| Mode | E-E |
| Signal | None |
| Measurement point | TP242 (Pin ⑦ of IC219: FH BIAS) |
| Measurement equipment | Digital voltmeter |
| Adjustment element | RV216 [RV215] |
| Specified value | $2.0 \pm 0.1\text{Vdc}$ |

[Adjustment method]

- 1) Set up the SP [LP] mode by the SP/LP button.
- 2) Adjust with RV216 [RV215] to $2.0 \pm 0.1\text{Vdc}$.

8-2-12. SLOW fH Adjustment

The adjustment element of LP mode is shown in parentheses [].

| | |
|-----------------------|-----------------------------------|
| Mode | FORWARD SLOW |
| Signal | SP [LP] mode self-recorded tape |
| Measurement point | Pin ③ of CN216 (COMP SYNC) |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV218, RV212 [RV217] |
| Specified value | Minimum shaking width of fH pulse |

[Connection]

Connect TP001 (EMERG OFF) and TP002 (GND) with a jumper wire to set up the TEST mode.

[Adjustment method]

- 1) Adjust with RV218 and RV212 Alternately to minimize the shaking of the fH pulse.
[Adjust with RV217 to minimize the shaking width of fH pulse.]

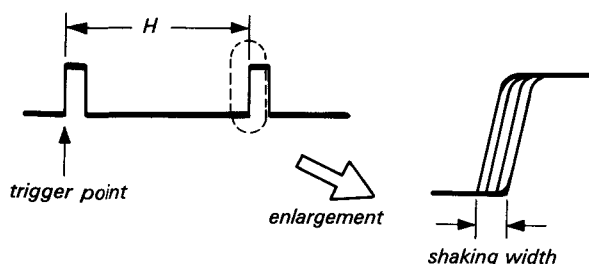


Fig. 8-12.

8-3. VIDEO SYSTEM ADJUSTMENT

The adjustment of the video system should in principle be followed the undermentioned adjustment procedure.

The colour video signal supplied from the pattern generator is utilized as the video input signal of the video system adjustment in recording mode. Make sure to check that the SYNC signal and colour burst signal are matched with those in the set-up of during the adjustment of as shown in Fig. 8-2.

[Adjustment procedure]

- 1) Playback frequency characteristics adjustment
- 2) Flying erase check
- 3) Crystal oscillator fo adjustment
- 4) Y/C separation adjustment
- 5) Y comb type filter adjustment
- 6) SYNC AGC adjustment
- 7) VIDEO OUT level adjustment
- 8) PB Y level adjustment
- 9) Y FM carrier frequency adjustment
- 10) Y FM deviation adjustment
- 11) AC clipping adjustment
- 12) 375fH VCO adjustment
- 13) Chroma emphasis fo adjustment
- 14) Carrier balance adjustment
- 15) GCA adjustment
- 16) fH VCO adjustment
- 17) REC Y level adjustment
- 18) REC C level adjustment
- 19) REC AFM level check
- 20) REC ATF level check

8-3-1. Playback Frequency Characteristic Adjustment (RP-36 Board)

(1) LP playback frequency characteristic adjustment

The adjustment elements of CH2 are shown in parentheses [].

| Mode | Playback |
|-----------------------|--------------------------------------------------------------------------------------|
| Signal | Alignment tape: For frequency characteristic adjustment (WR5-2C) |
| Measurement point | Pin ⑤ [Pin ⑥] of CN008 •External trigger: Pin ② of CN008 •Trigger slope: + [-] |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV101 [RV102] |
| Specified value | 3.58MHz level: 5.5MHz level = 10:7 |

[Adjustment method]

- 1) Adjust with RV101 [RV102] so that the level difference ratio between 3.58 MHz and 5.5 MHz becomes 10:7.

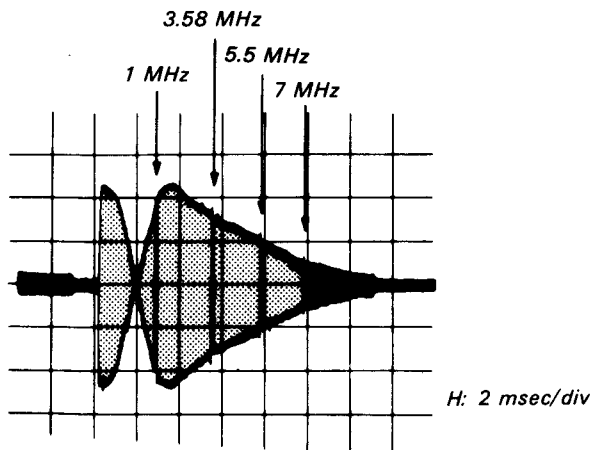


Fig. 8-13.

(2) SP playback frequency characteristic adjustment

The adjustment elements of CH2 are shown in parentheses [].

| Mode | Playback |
|-----------------------|--------------------------------------------------------------------------------------|
| Signal | Alignment tape: For frequency characteristic adjustment use (WR5-2C) |
| Measurement point | Pin ③ [Pin ④] of CN008 •External trigger: Pin ② of CN008 •Trigger slope: - [+] |
| Measurement equipment | Oscilloscope. |
| Adjustment element | RV201 [RV202] |
| Specified value | 3.58MHz level: 5.5MHz level = 10:7 |

[Connection]

Connect TP206 (F TAPE) on the SP-2 board and GND with a jumper wire.

[Adjustment method]

- 1) Adjust with RV201 [RV202] so that the level difference ratio between 3.58 MHz and 5.5 MHz becomes 10:7.

8-3-2. Flying Erase Check (RP-36 Board)

| Mode | REC |
|-----------------------|-----------------------------------------------|
| Signal | Arbitrary |
| Measurement point | Pin ⑱ of CN001 (FE(X)) |
| Measurement equipment | Oscilloscope and frequency counter |
| Specified value | Frequency: Over 7 MHz Voltage: Over 8 Vp-p |

Note: Be sure to use MP type tape (Pin ② of CN002 should be "L").

[Confirmation method]

- 1) Make sure that the oscillation frequency is over 7 MHz and the oscillation voltage is over 8 Vp-p.

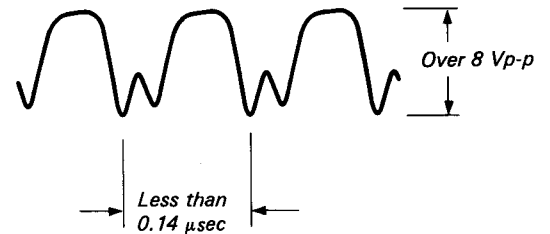


Fig. 8-14.

8-3-3. Crystal Oscillator fo Adjustment (CH-44/VI-20 Board)

| | |
|-----------------------|-------------------------------------------------------|
| Mode | Playback |
| Signal | Alignment tape: For operation confirmation (WR5-3CSP) |
| Measurement point | Pin ② of CH-44 board |
| Measurement equipment | Frequency counter |
| Adjustment element | CV001 on CH-44 board |
| Specified value | $4433619 \pm 50\text{Hz}$ |

Note: Connect the frequency counter through a buffer of high impedance (approximately $10\text{ M}\Omega$) and low capacitance (less than 10pF)

[Adjustment method]

- 1) Adjust with CV001 on the CH-44 board so that it becomes $4433619 \pm 50\text{Hz}$.

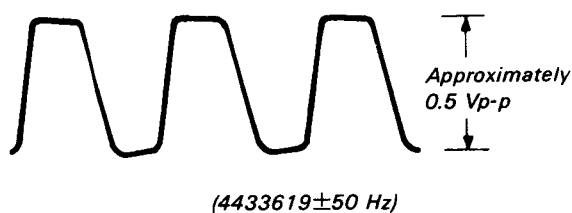


Fig. 8-15.

8-3-4. Chrome Comb Filter Adjustment (VI-20 Board)

| | |
|---------------------|-----------------------------------|
| Mode | E-E |
| Signal | Colour bar |
| Measurement point | Pin ② of IC002 |
| Measuring equipment | Oscilloscope. |
| Adjustment element | RV011, LV201 |
| Specified value | Minimum residual chroma component |

[Connection]

Connect Q202 base to GND with a jumper wire.

[Adjustment method]

- 1) Adjust with RV011 and LV201 alternately so that the residual chroma component becomes minimum.

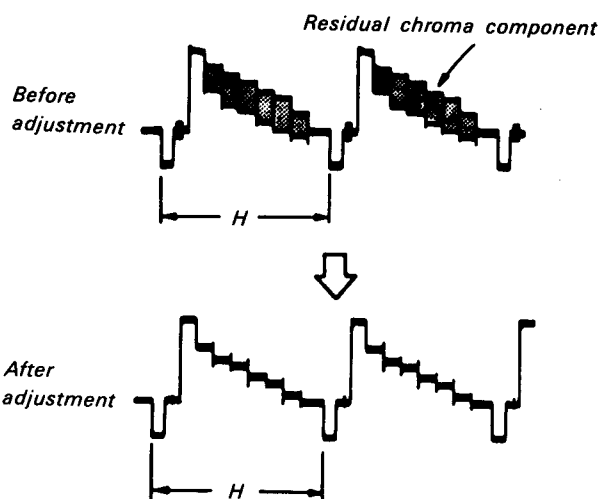


Fig. 8-16.

8-3-5. Y Comb Type Filter Adjustment (VI-20 Board)

| | |
|-----------------------|---------------------------|
| Mode | E-E |
| Signal | Colour bar |
| Measurement point | Pin ③ of IC002 |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV012 |
| Specified value | Minimum Y-YD signal level |

Note: Be sure to connect a $22\text{k}\Omega$ of resistor in series between Pin ③ of IC002 and 10:1 probe.

[Adjustment method]

- 1) Adjust with RV012 so that the Y-YD signal level at the sync portion is minimum.
- 2) While playing back a tape in which dropouts are recorded, be sure to confirm that these dropouts are not discernible. In the event the dropouts become discernible, adjust with RV012 so that they become undiscernible.

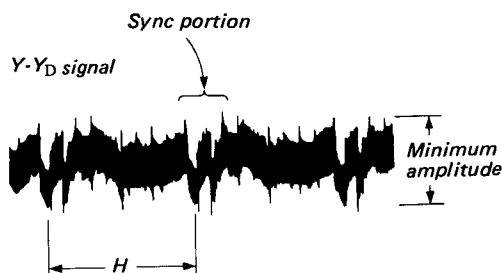


Fig. 8-17.

8-3-6. SYNC AGC Adjustment (VI-20 Board)

| | |
|-----------------------|-------------------------|
| Mode | E-E |
| Signal | Colour bar |
| Measurement point | Pin ③① of IC001 |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV009 |
| Specified value | $0.50 \pm 0.02 V_{p-p}$ |

[Adjustment method]

- 1) Adjust with RV009 so that it becomes $0.50 \pm 0.02 V_{p-p}$.

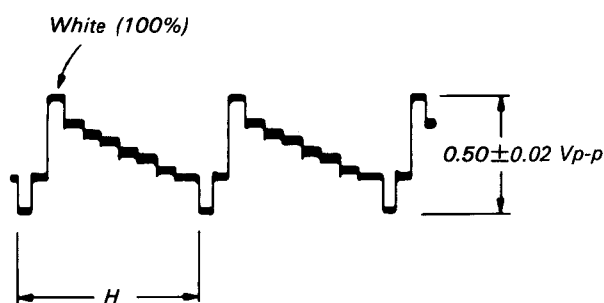


Fig. 8-18.

8-3-7. VIDEO OUT Level Adjustment (VI-20 Board)

| | |
|-----------------------|-------------------------|
| Mode | E-E |
| Signal | Colour bar |
| Measurement point | Pin ⑤ of CN007 |
| Measurement equipment | Oscilloscope. |
| Adjustment element | RV010 |
| Specified value | $1.00 \pm 0.05 V_{p-p}$ |

[Adjustment method]

- 1) Adjust with RV010 so that it becomes $1.00 \pm 0.05 V_{p-p}$.

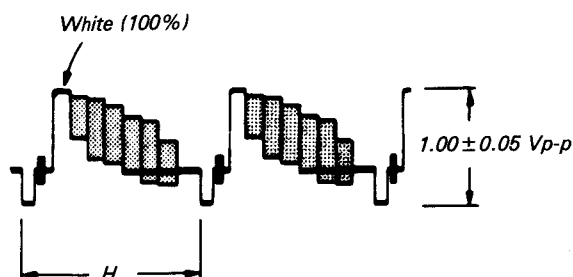


Fig. 8-19.

8-3-8. PB Y Level Adjustment (VI-20 Board)

| | |
|-----------------------|---------------------------------------------------------------------------|
| Mode | Playback |
| Signal | Alignment tape: For operation confirmation (WR5-3 CSP) Colour bar section |
| Measurement point | Pin ⑤ of CN007 |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV005 |
| Specified value | $1.00 \pm 0.05 V_{p-p}$ |

- Note:** 1. Set the SHARPNESS control (FT-13 board RV001) to the center click position.
2. Be sure that the EDIT switch (S014 on FT-13 board) is turned OFF. (Confirm that the EDIT lamp is not lit.)

[Adjustment method]

- 1) Adjust with RV005 so that it becomes $1.00 \pm 0.05 V_{p-p}$.

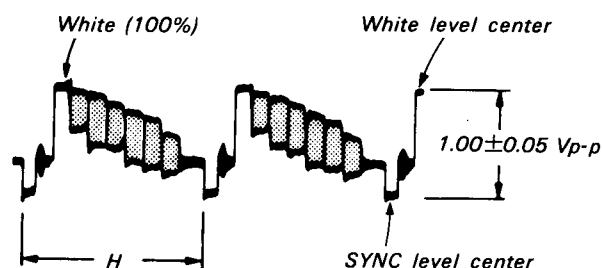


Fig. 8-20.

8-3-9. Y FM Carrier Frequency Adjustment (VI-20 Board)

| | |
|-----------------------|-----------------------------|
| Mode | E-E |
| Signal | Non-signal |
| Measurement point | Pin ⑤ of CN003 (REC Y) |
| Measurement equipment | Frequency counter |
| Adjustment element | RV008 |
| Specified value | $4.20 \pm 0.05 \text{ MHz}$ |

Note: Set up the SP mode.

[Adjustment method]

- 1) Set RV007 (EMPH) to the mechanical center. (The slide pin of RV007 is approximately 2.7Vdc.)
- 2) Adjust with RV008 so that it becomes $4.20 \pm 0.05 \text{ MHz}$.
- 3) Be sure to perform the "Deviation adjustment" and "AC CLIP adjustment".

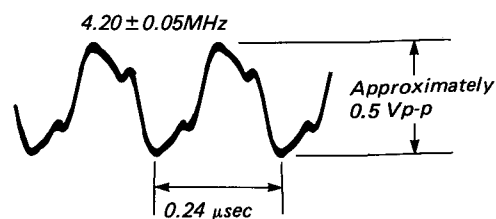


Fig. 8-21.

8-3-10. Y FM Deviation Adjustment (VI-20 Board)

| | |
|-----------------------|-----------------------------------------|
| Mode | Recording and playback |
| Signal | Colour bar |
| Measurement point | Pin ⑤ of CN007 |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV006 |
| Specified value | Playback level: $1.00 \pm 0.05 V_{p-p}$ |

Note: 1. Be sure that the "VIDEO OUT level adjustment", "PB Y level adjustment" and "Y FM carrier frequency adjustment" have been completed.
 2. Set the SHARPNESS Control (FT-13 board RV001) to the center click position.
 3. Be sure the EDIT switch (S014 on the FT-13 board) is turned OFF. (Confirm that the EDIT lamp is not lit.)

[Adjustment method]

- 1) Record the colour bar signal.
- 2) Playback the recorded section.
- 3) Be sure to check the playback output level.
Specified value: $1.00 \pm 0.05 V_{p-p}$
- 4) When the specified value is not satisfied, repeat 1) to 3) after turning RV006 in the following manner.

| | Turning direction of RV006 Seen from component side |
|---------------------------------------|--------------------------------------------------------|
| When larger than the specified value | Clockwise (↻) |
| When smaller than the specified value | Counterclockwise (↺) |

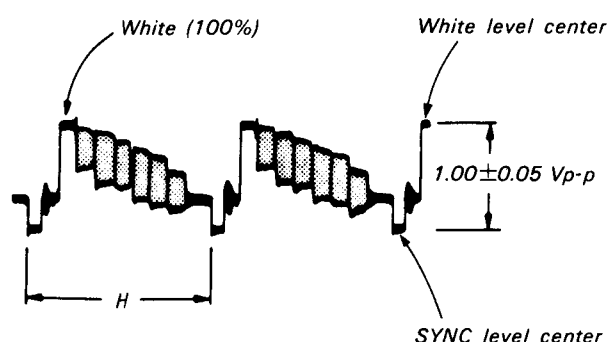


Fig. 8-22.

8-3-11. Emphasis Adjustment (VI-20 Board)

| | |
|-----------------------|----------------|
| Mode | E-E |
| Signal | Colour bar |
| Measurement point | Pin ⑱ of IC001 |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV007 |
| Specified value | $230 \pm 10\%$ |

[Adjustment method]

- 1) Adjust with RV007 so that the peak of the white 100% becomes $230 \pm 10\%$.

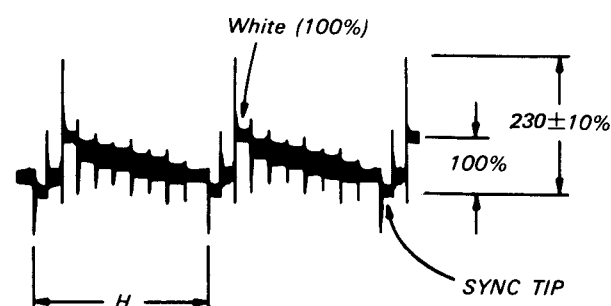


Fig. 8-23.

8-3-12. 375f_H VCO Adjustment (CH-44/VI-20 Board)

| | |
|-----------------------|-------------------------------|
| Mode | Recording |
| Signal | Colour bar |
| Measurement point | Pin ⑳ of IC001 on CH-44 board |
| Measurement equipment | Digital voltmeter |
| Adjustment element | RV001 on CH-44 board |
| Specified value | $3.00 \pm 0.05 V_{dc}$ |

[Adjustment method]

- 1) Adjust with RV001 on the CH-44 board so that it becomes $3.0 \pm 0.05 V_{dc}$.

8-3-13. Chroma Emphasis fo Adjustment (CH-44/VI-20 Boards)

| | |
|-----------------------|-------------------------------------------------------------------------------------------------------|
| Mode | E-E |
| Signal | Colour bar |
| Measurement point | Pin ③⑥ of CH-44 board |
| Measurement equipment | Oscilloscope |
| Adjustment element | T001 on CH-44 board |
| Specified value | Be sure to confirm that the fo component is minimum and zero cross appears between green and magenta. |

[Connection]

Connect the following two locations of CH-44 board using 4.7kΩ resistors.

Pin ②⑦ (ACC) — Pin ③③ (GND)

Pin ②⑦ (ACC) — Pin ③⑦ (5V).

[Adjustment method]

- 1) Adjust with T001 on the CH-44 board so that the amplitude of the flat cyan section of the chroma signal becomes minimum.

At this point, be sure to confirm that the zero cross appears between the green and magenta.

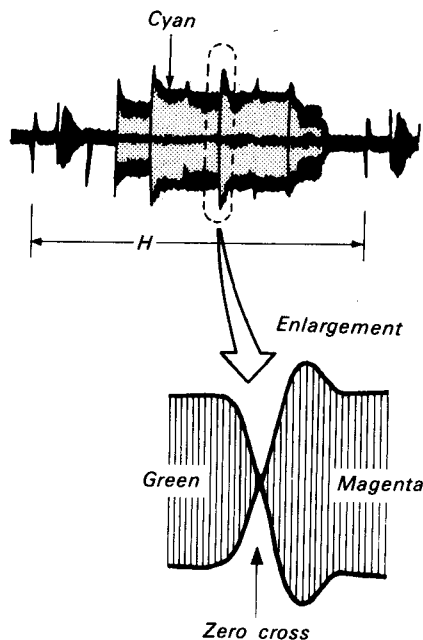


Fig. 8-24.

8-3-14. Carrier Balance Adjustment (CH-44/VI-20 Board)

| | |
|-----------------------|------------------------------------|
| Mode | E-E |
| Signal | Colour bar |
| Measurement point | Pin ②⑧ of CH-44 board |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV002 on CH-44 board |
| Specified value | Minimize 5.17 MHz signal component |

[Adjustment method]

- 1) Adjust with RV002 on the CH-44 board so that the 5.17 MHz signal component becomes minimum.

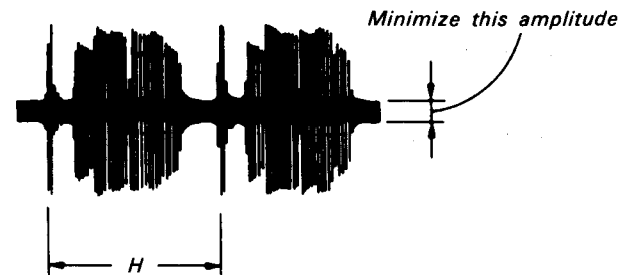


Fig. 8-25.

8-3-15. GCA Adjustment (VI-20 Board)

| | |
|-----------------------|--------------------|
| Mode | Playback |
| Signal | Arbitrary tape |
| Measurement point | Pin ②② of IC005 |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV014 |
| Specified value | 500 ± 25 mVp-p |

[Adjustment method]

- 1) Adjust with RV014 so that it becomes 500 ± 25 mVp-p.
- 2) Set to either the STILL, CUE or REVIEW mode, and be sure to confirm that the thickness of the colour does not differ from that of the playback mode. If necessary, adjust with RV014. (Be sure to play back a tape of LP mode.)



Fig. 8-26.

8-3-16. f_H VCO Adjustment (VI-20 Board)

| | |
|-----------------------|--------------------------------------------|
| Mode | E-E |
| Signal | Colour bar |
| Measurement point | CH1: Pin ⑬ of IC005 CH2: Pin ⑤ of CN007 |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV013 |
| Specified value | $14.5 \pm 0.2 \mu\text{sec}$ |

[Adjustment method]

- 1) Adjust RV013 so that the T_R of CH1 is $14.5 \pm 0.2 \mu\text{sec}$.
- 2) Confirm that the H (time) of CH1 and CH2 is stable.

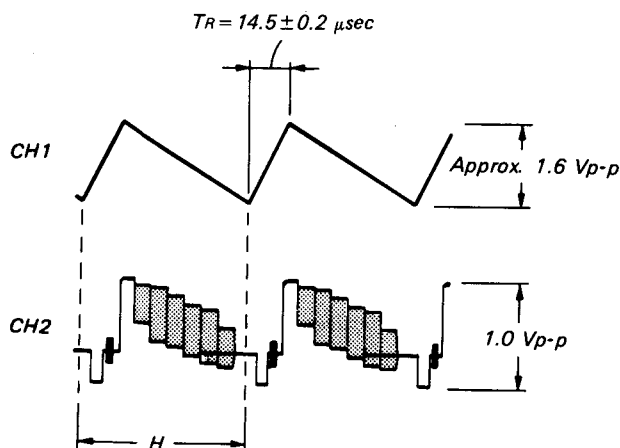


Fig. 8-27.

8-3-17. REC Y Level Adjustment (VI-20 Board)

| | |
|-----------------------|------------------------------|
| Mode | REC (SP mode) |
| Signal | Non-signal |
| Measurement point | Pin ⑤ of CN003 (Note 2.) |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV005 |
| Specified value | $0.46 \pm 0.02 \text{ Vp-p}$ |

Note 1: Be sure to always perform the adjustment of the REC C level after the REC Y level adjustment has been completed.

Note 2: Use the low-pass filter shown in Fig. 8-28.

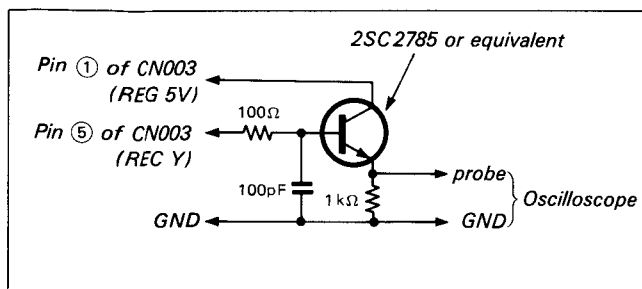


Fig. 8-28.

[Adjustment method]

- 1) Adjust with RV005 so that it becomes $0.46 \pm 0.02 \text{ Vp-p}$.

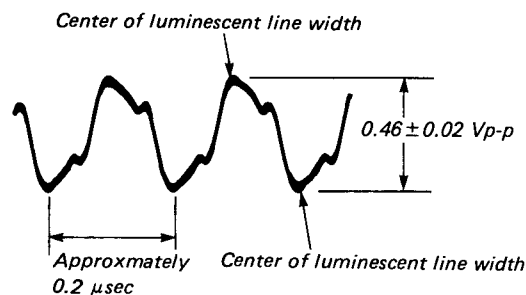


Fig. 8-29.

8-3-18. REC C Level Adjustment (VI-20 Board)

| | |
|-----------------------|--------------------------|
| Mode | REC |
| Signal | Colour bar |
| Measurement point | Pin ⑤ of CN003 (Note 1.) |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV001 |
| Specified value | $58 \pm 3 \text{ mVp-p}$ |

Note 1: Use the low-pass filter shown in Fig. 8-28.

Note 2: Be sure to use the MP type tape. (Be sure Pin ④ of W001 TAPE 2/TAPE 1 is at "L".)

[Connection]

Connect the following three points on VI-20 board with jumper wires.

- 1) L106 (Q113 base: REC Y) and GND.
- 2) W002 ① PIN (REC AFM) and GND.
- 3) W005 ⑤ PIN (REC ATF) and GND.

[Adjustment method]

- 1) Adjust with RV001 so that it becomes 60 mVp-p .

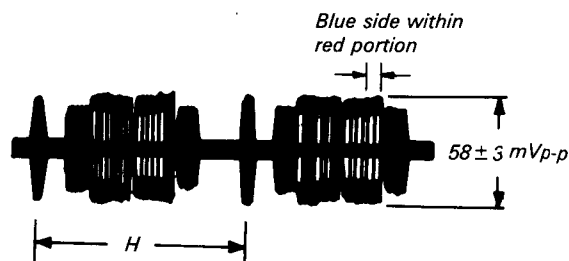


Fig. 8-30.

8-3-19. REC AFM Level Check (VI-20 Board)

| | |
|-----------------------|--------------------------|
| Mode | REC (SP mode) |
| Signal | Non-signal |
| Measurement point | Pin ⑤ of CN003 (Note 1.) |
| Measurement equipment | Oscilloscope |
| Specified value | 20.5 ± 4.0 mVp-p |

- Note:** 1. Use the low-pass filter shown in Fig. 8-28.
 2. Be sure to use the MP type tape.
 (Be sure Pin ④ of W001 TAPE 2/TAPE 1 is at "L".)
 3. When the signal level is too small to read, use a 1:1 probe.

[Connection]

Connect the following three points on the VI-20 board with jumper wires.

- 1) L106 (Q113 base: REC Y) and GND.
- 2) W005 ⑤ PIN (REC ATF) and GND.

[Confirmation method]

- 1) Check that the REC AFM level is 20.5 ± 4.0 mVp-p.

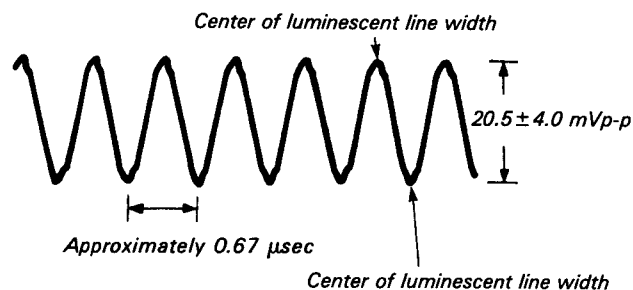


Fig. 8-31.

8-3-20. REC ATF Level Check (VI-20 Board)

| | |
|-----------------------|--------------------------|
| Mode | REC (SP mode) |
| Signal | Non-signal |
| Measurement point | Pin ⑤ of CN003 (Note 1.) |
| Measurement equipment | Oscilloscope |
| Specified value | 13.5 ± 3.0 mVp-p |

- Note:** 1. Use the low-pass filter shown in Fig. 8-28.
 2. Be sure to use the MP type tape.
 (Be sure Pin ④ of W001 TAPE 2/TAPE 1 is at "L".)
 3. When the signal level is too small to read, use a 1:1 probe.

[Connection]

Connect the following two points on the VI-20 board with jumper wires.

- 1) L106 (Q113 base: REC Y) and GND.
- 2) W002 ① PIN (REC AFM) and GND.

[Confirmation method]

- 1) Check that the REC ATF level is 13.5 ± 3.0 mVp-p.

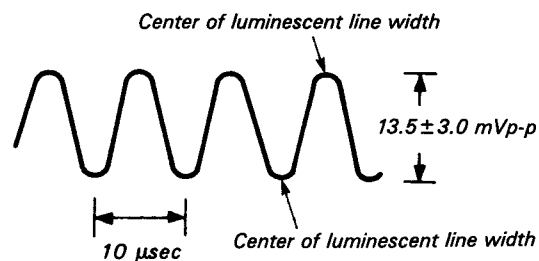


Fig. 8-32.

8-4. AUDIO SYSTEM ADJUSTMENT

Use a colour bar signal as video signal input when performing adjustment.

Connection of Audio Adjustment Measuring Instruments
Connect the following audio measuring equipment in addition to the video measuring instruments.

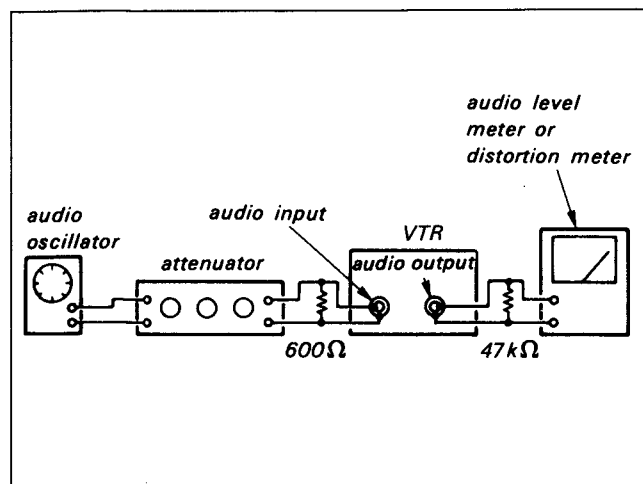


Fig. 8-33.

8-4-1. PCM Audio System Adjustment

Unless otherwise specified, set the VTR switches and controls as shown below when making the adjustment.

INPUT SELECT switch LINE
AUDIO MONITOR (PCM/MIX/STD)
switch PCM
REC LEVEL controls [5]
PCM MODE switch NORMAL

Note: The adjustment element of R ch is shown in parentheses [].

[Adjustment Order]

- 1) PCM Master Clock Oscillation Frequency Adjustment
- 2) REC PCM Level Check
- 3) MULTI PILOT Frequency Check
- 4) PCM Playback VCO Free Oscillation Frequency Adjustment
- 5) MULTI PILOT Detector Adjustment
- 6) PCM Playback Level Adjustment
- 7) E-E Output Level Check
- 8) PCM Offset Adjustment
- 9) PCM Recording Level Adjustment
- 10) Overall Frequency Characteristics
- 11) Overall Distortion Ratio Check
- 12) Overall S/N Check

1. PCM Master Clock Adjustment (SP-2 Board)

| Mode | Record |
|-----------------------|----------------------|
| Signal | None |
| Measurement point | Pin ③ of CN601 |
| Measurement equipment | Frequency counter |
| Adjustment element | RV602 |
| Specified value | 11.45 ± 0.01 MHz |

[Adjustment method]

- 1) Connect TP604 (IC605 ⑭ PIN) to Pin ① (REG 5V) of CN601 with a jumper wire.
- 2) Adjust to 11.45 ± 0.01 MHz with RV602.
- 3) Remove the jumper wire.
- 4) Connect TP604 to GND with a jumper wire.
- 5) Check that the frequency is more than 11.63MHz.



Fig. 8-34.

2. REC PCM Level Check (SP-2 board)

| Mode | Record |
|-----------------------|------------------|
| Signal | None |
| Measurement point | Pin ① of CN607 |
| Measurement equipment | Oscilloscope |
| Specified value | approx. 0.5 Vp-p |

[Confirmation method]

- 1) Check that the REC PCM level is approximately 0.5 Vp-p.

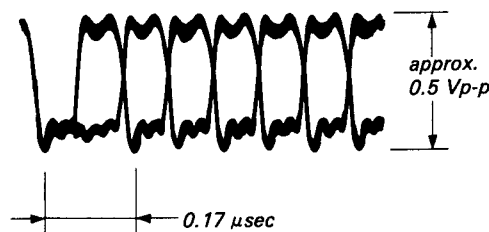


Fig. 8-35.

3. MULTI PILOT Frequency Check (SP-2 board)

| | |
|-----------------------|-------------------------|
| Mode | E-E |
| Signal | Arbitrary |
| Measurement point | Pin ③ of IC204 |
| Measurement equipment | Frequency counter |
| Specified value | 225.360 ± 0.200 kHz |

[Confirmation method]

- 1) Check that the frequency is 225.360 ± 0.200 kHz.

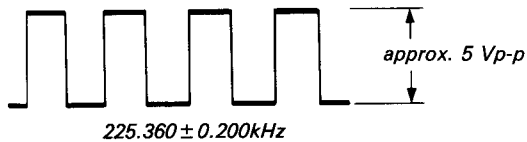


Fig. 8-36.

4. PCM Playback VCO Free Oscillation Frequency Adjustment (SP-2 Board)

| | |
|-----------------------|----------------------------------------------------------------------------------------------------------------------|
| Mode | PLAYBACK, FF INDEX SEARCH and REW INDEX SEARCH |
| Signal | Arbitrary tape |
| Measurement point | TP603 |
| Measurement equipment | Frequency counter |
| Adjustment element | RV601 (PLAYBACK) RV604 (FF INDEX SEARCH) RV603 (REW INDEX SEARCH) |
| Specified value | 11.50 ± 0.05 MHz (PLAYBACK) 10.29 ± 0.05 MHz (FF INDEX SEARCH) 12.71 ± 0.05 MHz (REW INDEX SEARCH) |

[Connection]

- 1) Connect TP600 (IC600 ① PIN) to Pin ① (REG 5V) of CN005 with a jumper wire.
- 2) Disconnect the CN607 from the SP-2 board.

[Adjustment method]

- 1) Set up the PLAYBACK mode.
- 2) Adjust to 11.50 ± 0.05 MHz with RV601.
- 3) Set up the FF INDEX SEARCH mode.
- 4) Adjust to 10.29 ± 0.05 MHz with RV604.
- 5) Set up the REW INDEX SEARCH mode.
- 6) Adjust to 12.71 ± 0.05 MHz with RV603.



Fig. 8-37.

5. MULTI PILOT Detector Adjustment (MK-2/AU-22 board)

| | |
|-----------------------|----------------------------------------------------------------------|
| Mode | E-E |
| Signal | None |
| Measurement point | 1. Pin ⑤ of IC801 on MK-2 board 2. Pin ⑤ of IC821 on MK-2 board |
| Measurement equipment | Frequency counter |
| Adjustment element | 1. RV801 (SP 1 CH) on MK-2 board 2. RV821 (LP 2 CH) on MK-2 board |
| Specified value | 225.361 ± 1 kHz |

Note: Connect the frequency counter through a buffer of high impedance (approximately 10MΩ) and low capacitance (less than 10pF)

The adjustment element of LP 2 CH is shown in parentheses [].

[Adjustment method]

- 1) Connect the frequency counter to Pin ⑤ of IC801 [IC851].
- 2) Adjust to 225.361 ± 1 kHz with RV801 [RV821].



Fig. 8-38.

6. PCM Playback Level Adjustment (AD-12/AU-22 Board)

| | |
|-----------------------|---------------------------------------------------------------------|
| Mode | Playback |
| Signal | Alignment tape: For Operation confirmation (WR5-3CSP) 400Hz section |
| Measurement point | AUDIO OUT L [R] |
| Measurement equipment | Audio level meter |
| Adjustment element | RV705 on AD-12 board |
| Specified value | -10.0 ± 0.1 dBs |

[Adjustment method]

- 1) Adjust to -10.0 ± 0.1 dBs with RV705.

Note: If there is a level difference between Lch and Rch, adjust to the center level.

7. E-E Output Level Check

| | |
|-----------------------|----------------------------------|
| Mode | E-E |
| Signal | 400Hz, -10dBs: AUDIO IN L [R] |
| Measurement point | AUDIO OUT L [R] |
| Measurement equipment | Audio level meter |
| Specified value | -10 ± 2dBs |

[Confirmation method]

- 1) Set the REC LEVEL control to **5** position.
- 2) Check that the REC LEVEL meter indicate -10dB.
- 3) Check that the AUDIO OUT L [R] level is -10 ± 2dBs.

8. PCM Offset Adjustment (AD-12/AU-22 Board)

| | |
|-----------------------|---------------------------------------------------------------------|
| Mode | REC |
| Signal | None |
| Measurement point | CH1: Pin ⑨ (ADDA) of AD-12 board CH2: Pin ⑪ (WCK) of AD-12 board |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV701 [RV751] on AD-12 board |
| Specified value | Equal brightness of the upper luminescent line and the lower |

Note: Be sure to perform the adjustment alternatly, since Lch and Rch affect each others.

[Adjustment method]

- 1) Set the REC LEVEL controls to the minimum position.
- 2) Adjust with RV701 [RV705] so that the brightness of the uppwer luminescent line is equal to that of the lower luminescent line.

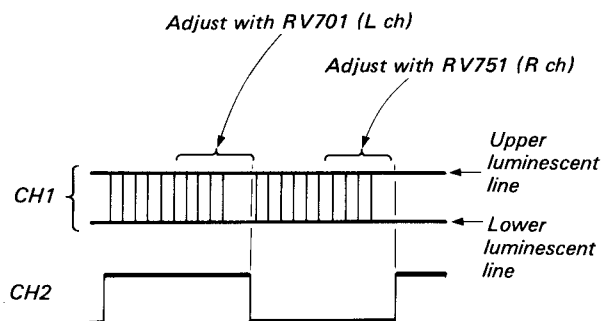


Fig. 8-39.

9. PCM Recording Level Adjustment (AD-12/AU-22 board)

| | |
|-----------------------|----------------------------------------|
| Mode | Self-recording and playback |
| Signal | 400Hz, -10dBs: AUDIO IN (Both L and R) |
| Measurement point | AUDIO OUT L [R] |
| Measurement equipment | Audio level meter |
| Adjustment element | RV703 [RV753] on AD-12 board |
| Specified value | -10 ± 0.5dBs |

Note: Be sure that the "PCM playback level adjustment" have been completed.

[Adjustment method]

- 1) Set up E-E mode.
- 2) Adjust with the REC LEVEL control so that the AUDIO OUT level is -10dBs. (Both L CH and R CH).
- 3) Record the signal.
- 4) Playback the recorded portion.
- 5) Check that the AUDIO OUT L [R] level is -10 ± 0.5dBs.
- 6) If the specified value is not satisfied, repeat 1 to 5 after turning RV703 [RV753] on AD-12 board.

10. Overall Frequency Characteristic Check

| | |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Mode | Self-recording and playback |
| Signal | Ⓐ 400Hz, -10dBs Ⓑ 20Hz, -10dBs Ⓒ 14kHz, -10dBs AUDIO IN L [R] |
| Measurement point | AUDIO OUT L [R] |
| Measurement equipment | Audio level meter |
| Specified value | When the playback output level of 400Hz is specified as 0dB, that of 20Hz should be 0 ± 2dB, and that of 14kHz should be 0 ± 3dB. |

[Confirmation method]

- 1) Adjust the AUDIO OUT L [R] level to -10dBs with REC LEVEL control.
- 2) Record the signals Ⓐ to Ⓒ in sequence.
- 3) Playback the recorded section.
- 4) When the playback output level of 400Hz is specified as 0dB, that of 20Hz should be 0 ± 2dB, that of 14kHz should be 0 ± 3dB.

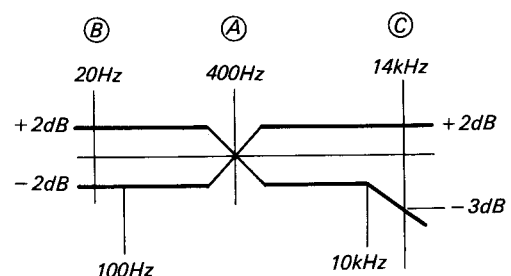


Fig. 8-40.

11. Overall Distortion Ratio Check

| | |
|-----------------------|----------------------------------|
| Mode | Self-recording and playback |
| Signal | 400Hz, -10dBs: AUDIO IN L [R] |
| Measurement point | LINE OUT L [R] |
| Measurement equipment | Distortion meter |
| Specified value | Less than 0.35% |

[Confirmation method]

- 1) Adjust the AUDIO OUT L [R] level to -10dBs with REC LEVEL control.
- 2) Record the signal.
- 3) Playback the recorded section.
- 4) The distortion ratio should be less than 0.35%.

12. Overall Noise Level Check

| | |
|-----------------------|------------------------------------------------------------------------|
| Mode | Self-recording and playback |
| Signal | Non-signal (Install shorting plugs to AUDIO IN both of L and R.) |
| Measurement point | AUDIO OUT L [R] |
| Measurement equipment | Audio level meter |
| Specified value | Less than -89dBs* ¹ |

[Confirmation method]

- 1) Record the signal.
- 2) Playback the recorded section.
- 3) The noise level should be less than -89dBs*¹

*¹ :The measured value when using IHF-A hearing sensitivity compensation filter.

8-4-2. AFM Audio System Adjustment

Unless otherwise specified, set the VTR switches and controls as shown below when making the adjustment.

INPUT SELECT switchLINE
AUDIO MONITOR (PCM/MIX/STD) switch.....STD

[Adjustment Order]

- 1) AFM carrier frequency adjustment.
- 2) AFM deviation adjustment.
- 3) E-E output level check
- 4) Overall level characteristics check
- 5) Overall frequency characteristics check
- 6) Overall distortion check
- 7) Overall noise level check

1. AFM Carrier Frequency Adjustment (AF-20/AU-22 Board)

| | |
|-----------------------|------------------------------------|
| Mode | REC (SP mode) |
| Signal | Non-signal |
| Measurement point | Pin ⑬ (REC AFM) of AF-20 board |
| Measurement equipment | Frequency counter and oscilloscope |
| Adjustment element | RV503 on AF-20 board |
| Specified value | $1.500 \pm 0.003\text{MHz}$ |

[Adjustment method]

- 1) Adjust with RV503 so that it becomes $1.500 \pm 0.003\text{MHz}$.
- 2) Check that the REC AFM level is approx. 90 mVp-p.

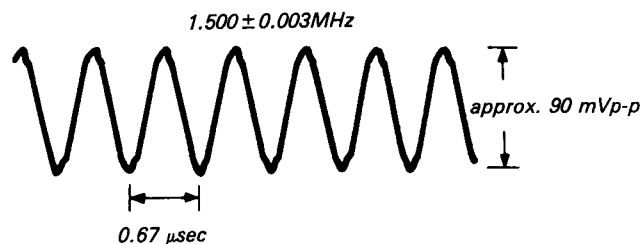


Fig. 8-41.

2. AFM Deviation Adjustment (AF-20/AU-22 Board)

| | |
|-----------------------|-------------------------------------------------------|
| Mode | Playback |
| Signal | Alignment tape: For operation confirmation (WR5-3CSP) |
| Measurement point | AUDIO OUT L or R |
| Measurement equipment | Audio level meter |
| Adjustment element | RV501 on AF-20 board |
| Specified value | $-10 \pm 0.2\text{dBs}$ |

[Adjustment method]

- 1) Adjust with RV501 so that the AUDIO OUT level becomes $-10 \pm 0.2\text{dBs}$.

3. E-E Output Level Check

The Checking element of Rch is shown in parentheses [].

| | |
|-----------------------|-----------------------------------------------------|
| Mode | E-E |
| Signal | 400Hz, -10dBs : AUDIO IN (Both of L and R) |
| Measurement point | AUDIO OUT L [R] |
| Measurement equipment | Audio level meter |
| Specified value | $-10 \pm 2\text{dBs}$ |

[Confirmation method]

- 1) Be sure the AUDIO OUT L [R] level is $-10 \pm 2\text{dBs}$.

4. Overall Level Characteristics Check

| | |
|-----------------------|-----------------------------------------------------|
| Mode | Self-recording and playback (SP) |
| Signal | 400Hz, -10dBs : AUDIO IN (Both of L and R) |
| Measurement point | AUDIO OUT L or R |
| Measurement equipment | Audio level meter |
| Specified value | $-10 \pm 3\text{dBs}$. |

[Confirmation method]

- 1) Record the signal.
- 2) Playback the recorded section.
- 3) Be sure the AUDIO OUT level is $-10 \pm 3\text{dBs}$.

5. Overall Frequency Characteristics Check

| | |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Mode | Self-recording and playback (SP) |
| Signal | Ⓐ 400Hz, -20dBs Ⓑ 30Hz, -20dBs Ⓒ 14kHz, -20dBs : AUDIO IN (Both of L and R) |
| Measurement point | AUDIO OUT L or R |
| Measurement equipment | Audio level meter |
| Specified value | When the 400Hz playback output level is specified as 0dB, the playback output levels of 30Hz and 14kHz become both $0 \pm 3\text{dB}$. |

[Confirmation method]

- 1) Record the signals of Ⓐ to Ⓒ in sequence.
- 2) Playback the recorded section.
- 3) Be sure that when the 400Hz playback output level is specified as 0dB, the playback output levels of 30Hz and 14kHz become both $0 \pm 3\text{dB}$.

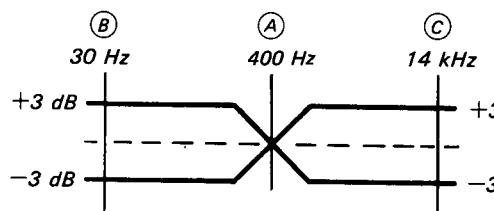


Fig. 8-42.

6. Overall Distortion Check

| | |
|-----------------------|-----------------------------------------------------|
| Mode | Self-recording and playback |
| Signal | 400Hz, -10dBs : AUDIO IN (Both of L and R) |
| Measurement point | AUDIO OUT L or R |
| Measurement equipment | Distortion meter |
| Specified value | Less than $0.5\%^{*1}$ |

[Confirmation method]

- 1) Record the signal
- 2) Playback the recorded section.
- 3) Be sure the distortion is less than $0.5\%^{*1}$.

*¹: The value when a distortion measuring filter (Fig. 8-43.) is used and that when the filter is not used is less than 1.0%.

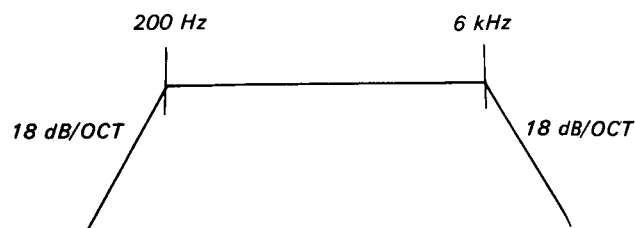


Fig. 8-43.

7. Overall Noise Level Check

| | |
|-----------------------|------------------------------------------------------------------------|
| Mode | Self-recording and playback (SP) |
| Signal | Non-signal (Install shorting plugs to AUDIO IN both of L and R.) |
| Measurement point | AUDIO OUT L or R |
| Measurement equipment | Audio level meter |
| Specified value | Less than -62dBs^{*2} |

[Confirmation method]

- 1) Record the signal.
- 2) Playback the recorded section.
- 3) Be sure the noise level is less than -62dBs^{*2} .

*2: The value when an IHF-A listening sensitivity correction filter is used.

8-5. TUNER SYSTEM ADJUSTMENT

8-5-1. Stereo Separation Adjustment (TS-50 Board)

| | |
|-----------------------|---------------------------------------------------------------------------------------------------------------------|
| Mode | E-E |
| Signal | Stereo broadcasting signal by a RF signal generator L CH...None R CH...400Hz 30% MOD •INPUT...AERIAL IN |
| Measurement point | AUDIO OUT (L) terminal |
| Measurement equipment | Audio level meter |
| Adjustment element | RV101 |
| Specified value | Minimum output level |

[Adjustment method]

Minimize the 400Hz output level with RV101.

8-6. TIMER SYSTEM ADJUSTMENT (FT-33 Board)

| | |
|-----------------------|------------------------------|
| Measurement point | Pin ⑥ of IC002 |
| Measurement equipment | Frequency counter |
| Adjustment element | CV001 |
| Specified value | $1048.58 \pm 0.01\text{kHz}$ |

[Connection]

- 1) Connect Pin ⑥ of IC002 and GND with a jumper wire.
- 2) Connect Pin ⑤ of IC002 and GND with a jumper wire.

[Adjustment method]

Adjust to $1048.58 \pm 0.01\text{kHz}$ with CV001.

8-7. SECAM-PAL CONVERSION SYSTEM ADJUSTMENT

- Make this adjustment aligning the PAL video system.
- For this adjustment, use the equipment listed below.

[Equipment Required]

- (1) PAL Colour Monitor TV
- (2) Oscilloscope, Dual-trace, Bandwidth... more than 10MHz with delay mode
- (3) SECAM colour-bar generator
- (4) PAL vector scope
- (5) Frequency counter
- (6) Digital voltmeter

Setting up during adjustment

Video signals output by a pattern generator are used as adjustment signals when making the electrical adjustments, and these video output signals should be within the required standard. Connect an oscilloscope to CNJ002 (VIDEO IN) on the VI-20 Board. Check that the amplitudes of video signal SYNC signals, picture portions, and line ID signals are flat at approximately 0.3, 0.7, and 0.3V, respectively. Fig. 8-45. shows video signals (colour bars) used in making the electrical adjustment.

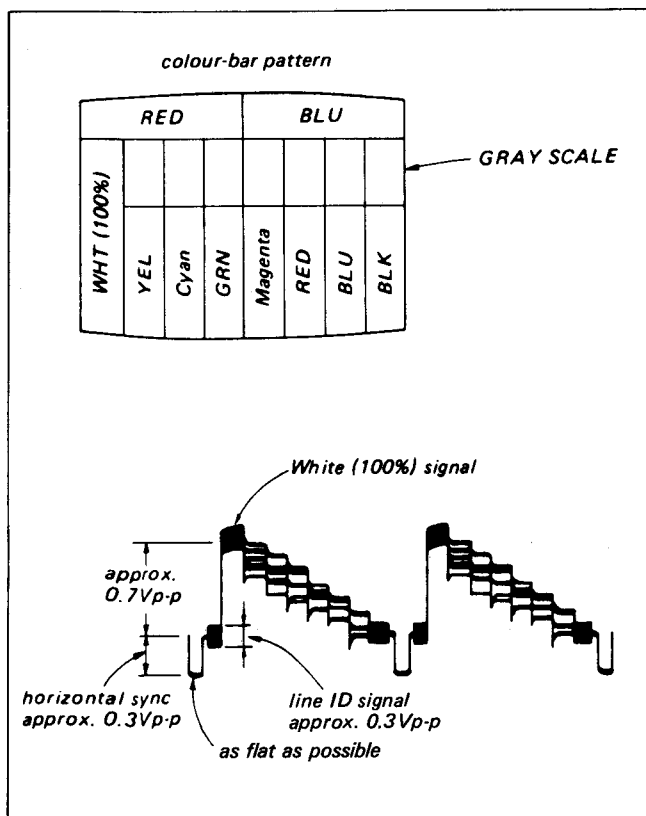


Fig. 8-44.

8-7-1. f_H VCO ADJUSTMENT (TC-3 Board)

| Mode | E-E |
|-----------------------|-----------------------------|
| Signal | Non-signal |
| Measurement point | Pin ③ of IC002 |
| Measurement equipment | Frequency counter |
| Adjustment element | RV001 |
| Specified value | $15.630 \pm 0.01\text{kHz}$ |

[Connection]

Connect between pin ⑪ of IC002 and GND with a capacitor of $0.1 \mu\text{F}$.

[Adjustment method]

- 1) Adjust with RV001 so that it becomes $15.630 \pm 0.01\text{kHz}$.

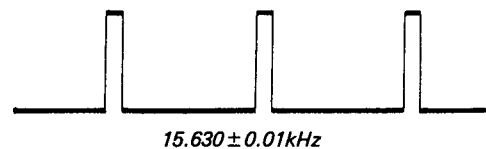


Fig. 8-45.

8-7-2. V Blanking Pulse Adjustment (TC-3 Board)

| Mode | E-E |
|-----------------------|----------------------------------------------------------------------------------------------------------------------|
| Signal | SECAM colour-bar |
| Measurement point | CH1: Pin ① of CN002 CH2: Pin ⑨ of IC003 |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV002, RV003 |
| Specified value | Leading edge adjustment (RV002) ... $-6 \pm 1\text{H}$ Trailing edge adjustment (RV003) ... $+23 \pm 0.5\text{H}$ |

[Adjustment method]

- 1) Adjust with RV003 so that the trailing edge of the V blanking pulse comes to the position of $+23 \pm 0.5\text{H}$ ($+1472 \pm 32 \mu\text{sec}$) from the front edge of the vertical SYNC signal.
- 2) Adjust with RV002 so that the leading edge of the V blanking pulse comes to the position of $-6 \pm 1\text{H}$ ($-384 \pm 64 \mu\text{sec}$) from the front edge of the vertical SYNC signal.

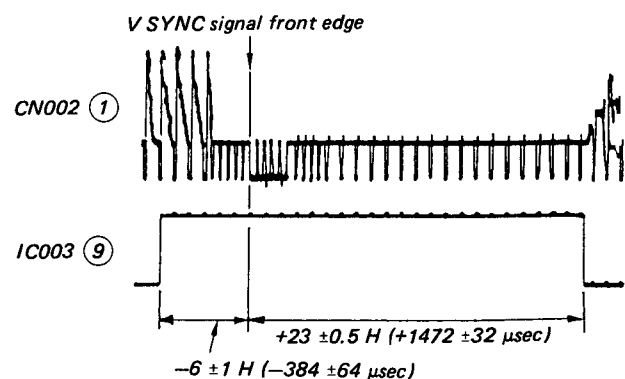


Fig. 8-46.

8-7-3. Bell Filter Adjustment (TC-3 Board)

| | |
|-----------------------|----------------------------------------------------------------------|
| Mode | E-E |
| Signal | SECAM colour-bar |
| Measurement point | TP001 (Connecting point of R053 and R054) |
| Measurement equipment | Oscilloscope |
| Adjustment element | LV002 |
| Specified value | The level variation of the chroma signal amplitude is $0 \pm 10\%$. |

Note: When performing (Adjustment method 1), be sure to use 1:1 probe as the signal level of TP001 is extremely small. In addition, when the adjustment is impossible because of the signal level is too small to read, perform (Adjustment method 2).

[Adjustment method 1]

- 1) Adjust LV002 until the waveform is flat.

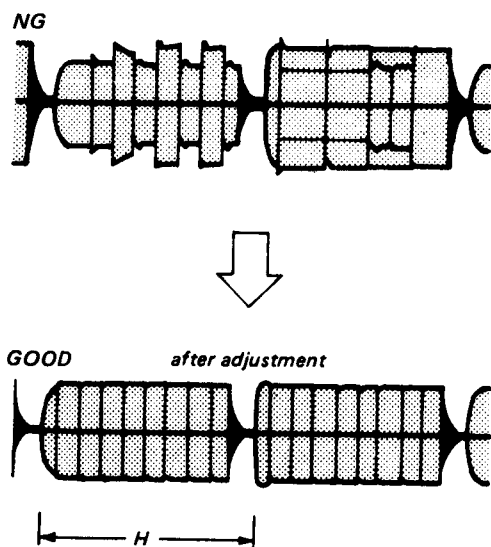


Fig. 8-47.

[Adjustment method 2]

- 1) Set the picture level of the monitor TV to maximum.
- 2) Adjust by turning LV002 so that the borders of the respective colour-bars (especially red and blue) become vivid and stop LV002 at the position where the beat (red and magenta sections) becomes small.

8-7-4. FSC Adjustment (TC-3/VI-20 Board)

| | |
|-----------------------|------------------------------|
| Mode | E-E |
| Signal | SECAM colour-bar |
| Measurement point | Pin ③ W005 on VI-20 board |
| Measurement equipment | Frequency counter |
| Adjustment element | CV001 on TC-3 board |
| Specified value | $4433618.75 \pm 10\text{Hz}$ |

Note: Connect the frequency counter through a buffer with high impedance (approx. $10\text{M}\Omega$) and low capacity (less than 10pF .)

[Adjustment method]

- 1) Adjust to $4433618.75 \pm 10\text{Hz}$ with CV001 on TC-3 board.

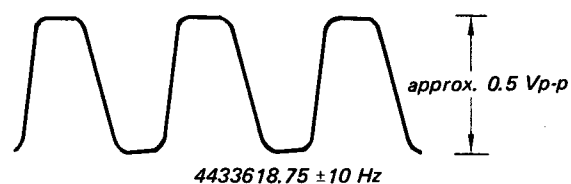


Fig. 8-48.

8-7-5. Demodulator Adjustment (TC-3 Board)

| | |
|-----------------------|----------------------------------------------------|
| Mode | E-E |
| Signal | SECAM colour-bar |
| Measurement point | Pin ① of CN002 |
| Measurement equipment | Oscilloscope |
| Adjustment element | LV001, RV005 |
| Specified value | Minimum carrier leak (less than 20mVp-p) |

[Adjustment method]

- 1) Adjust LV001 and RV005 alternately to minimize carrier leak.

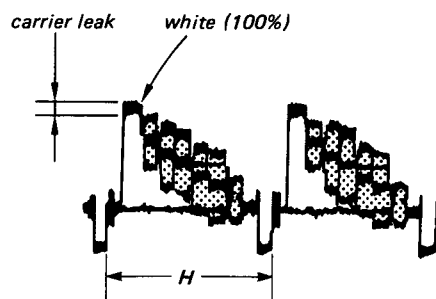


Fig. 8-49.

8-7-6. Delay Line Adjustment (TC-3 Board)

| | |
|-----------------------|------------------------------------------------------------------------------------------------------------------|
| Mode | E-E |
| Signal | SECAM colour-bar |
| Measurement point | VIDEO OUT terminal |
| Measurement equipment | PAL vector scope (75Ω terminated) |
| Adjustment element | LV003, RV007 |
| Specified value | 1. Be sure that RED and CYAN are within the (H). 2. Be sure that other colours than the above are within (C). |

[Adjustment method]

- 1) Adjust with LV003 and RV007 alternately so that the colour luminescent spots come into the specified frame.

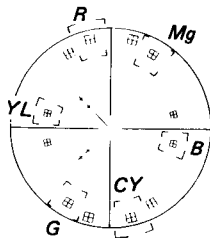


Fig. 8-50

8-7-7. Y/C Mix Adjustment (TC-3 Board)

| | |
|-----------------------|---------------------------------------------------------------------------|
| Mode | E-E |
| Signal | SECAM colour-bar |
| Measurement point | Pin ① of CN002 |
| Measurement equipment | Oscilloscope |
| Adjustment element | RV004 |
| Specified value | When the SYNC level is specified as 100%, the burst level becomes 100±5%. |

[Adjustment method]

- 1) Adjust with RV004 so that burst level becomes equivalent to the SYNC level.



Fig. 8-51

8-7-8. PAL/SECAM Distinction Adjustment (TC-3 Board)

| | |
|-----------------------|----------------------------------------|
| Mode | E-E |
| Signal | SECAM colour-bar |
| Measurement point | 1. Pin ⑭ of IC001 2. Pin ④ of CN002 |
| Measurement equipment | Digital voltmeter |
| Adjustment element | RV006 |
| Specified value | 12.0±0.5 Vdc |

[Connection]

Connect an adjustable resistor of 2.2 kΩ in parallel with LV002.

[Adjustment method]

- 1) Set the adjustable resistor of 2.2 kΩ to its maximum resistance value.
- 2) Confirm the DC voltage of pin ⑭ of IC001 is approx. 6.5 Vdc.
- 3) Make the resistance value of the adjustable resistor of 2.2 kΩ gradually small and stop it at the position when the DC voltage of pin ⑭ of IC001 becomes approx. 5 Vdc after suddenly dropped.
- 4) Set RV006 to the position that it is turned fully to counterclockwise (↺).

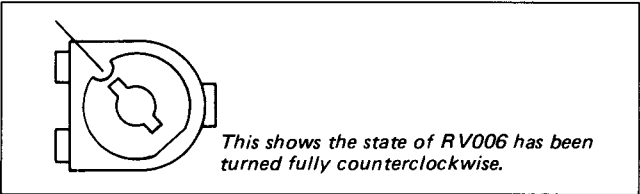
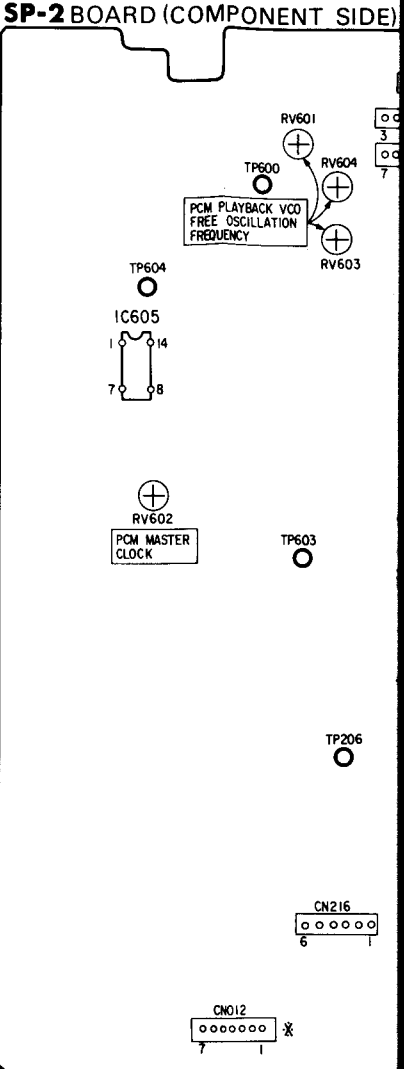
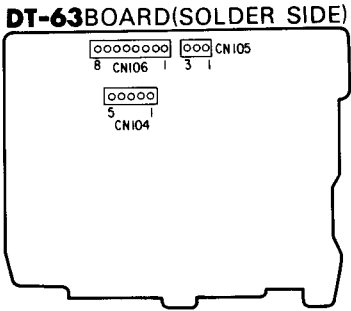
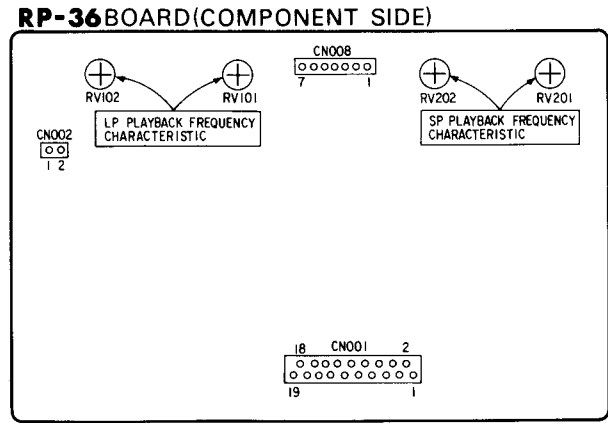
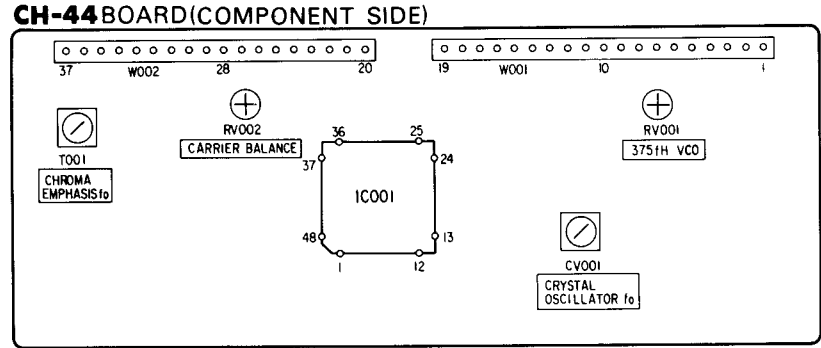
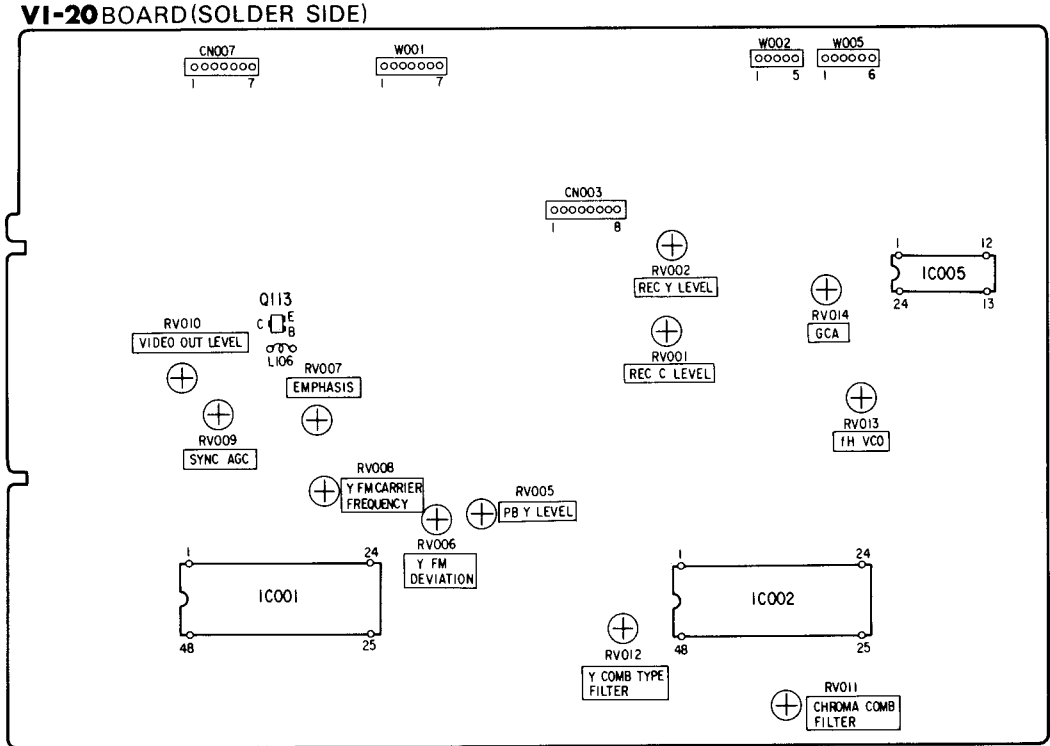


Fig. 8-52

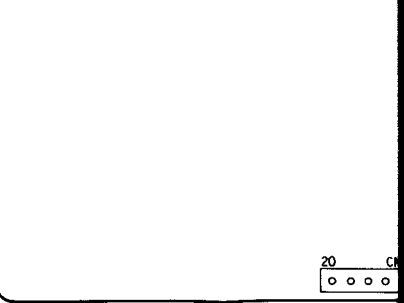
- 5) Connect a digital voltmeter to pin ④ of CN002 and confirm that the DC voltage is 0 Vdc.
- 6) Turn RV006 gradually clockwise (↻) and stop it at the position when the DC voltage at pin ④ of CN002 becomes 12±0.5 Vdc after suddenly increased.

8-8. ADJUSTMENT ELEMENT LOCATION

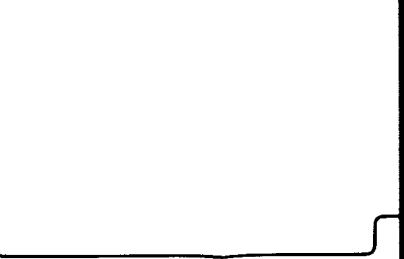


* mark is soldering side.

AF-20 BOARD (SOLDER SIDE)

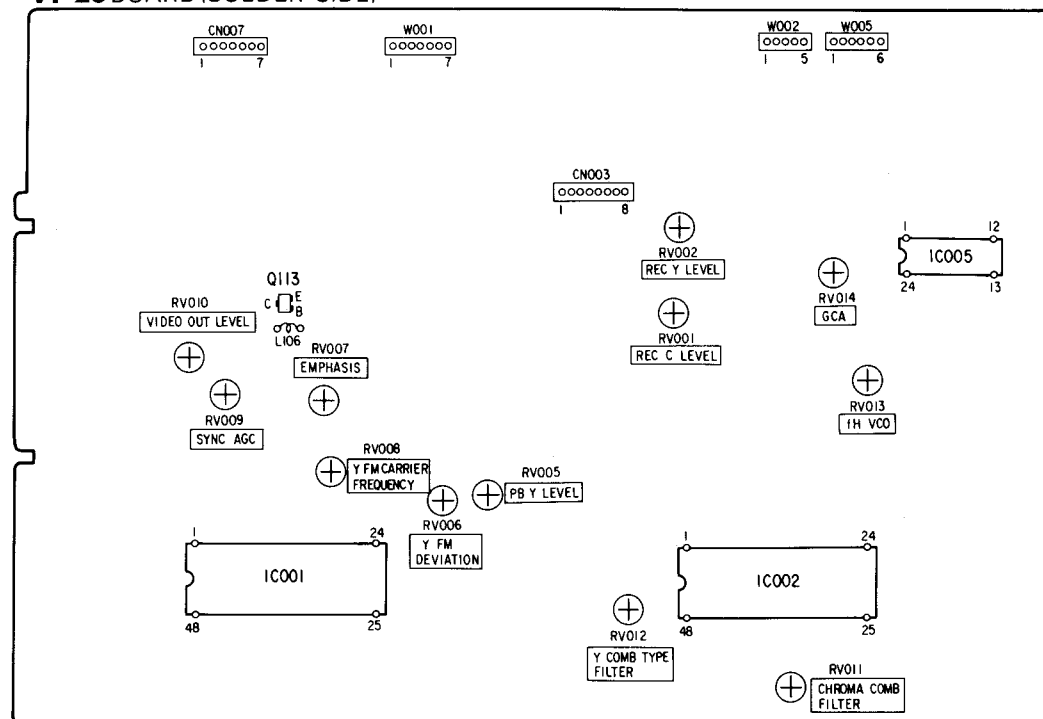


TS-50 BOARD (SOLDER SIDE)

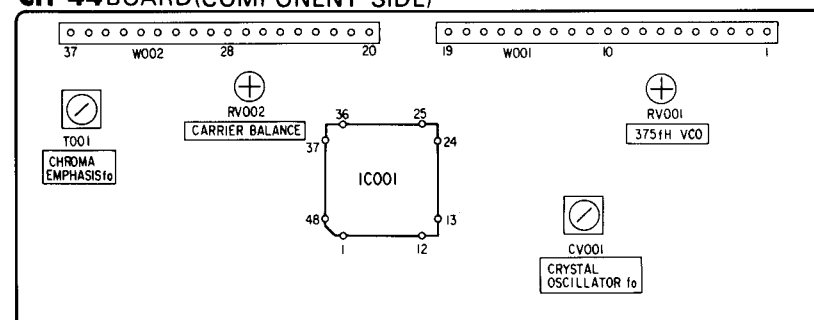


8-8. ADJUSTMENT ELEMENT LOCATION

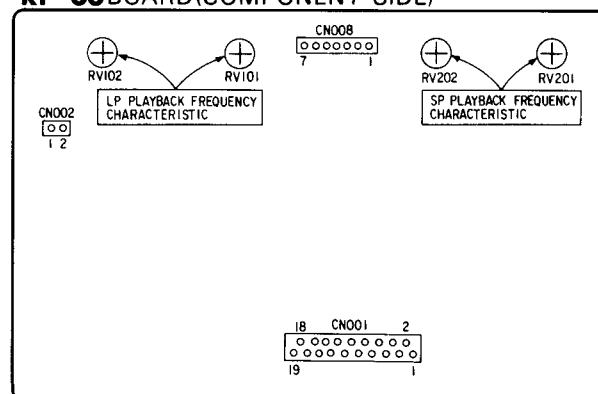
VI-20 BOARD (SOLDER SIDE)



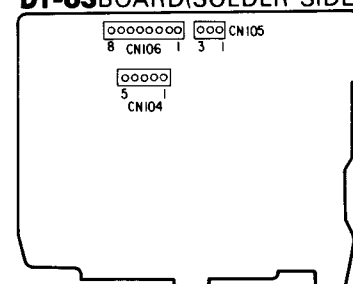
CH-44 BOARD (COMPONENT SIDE)



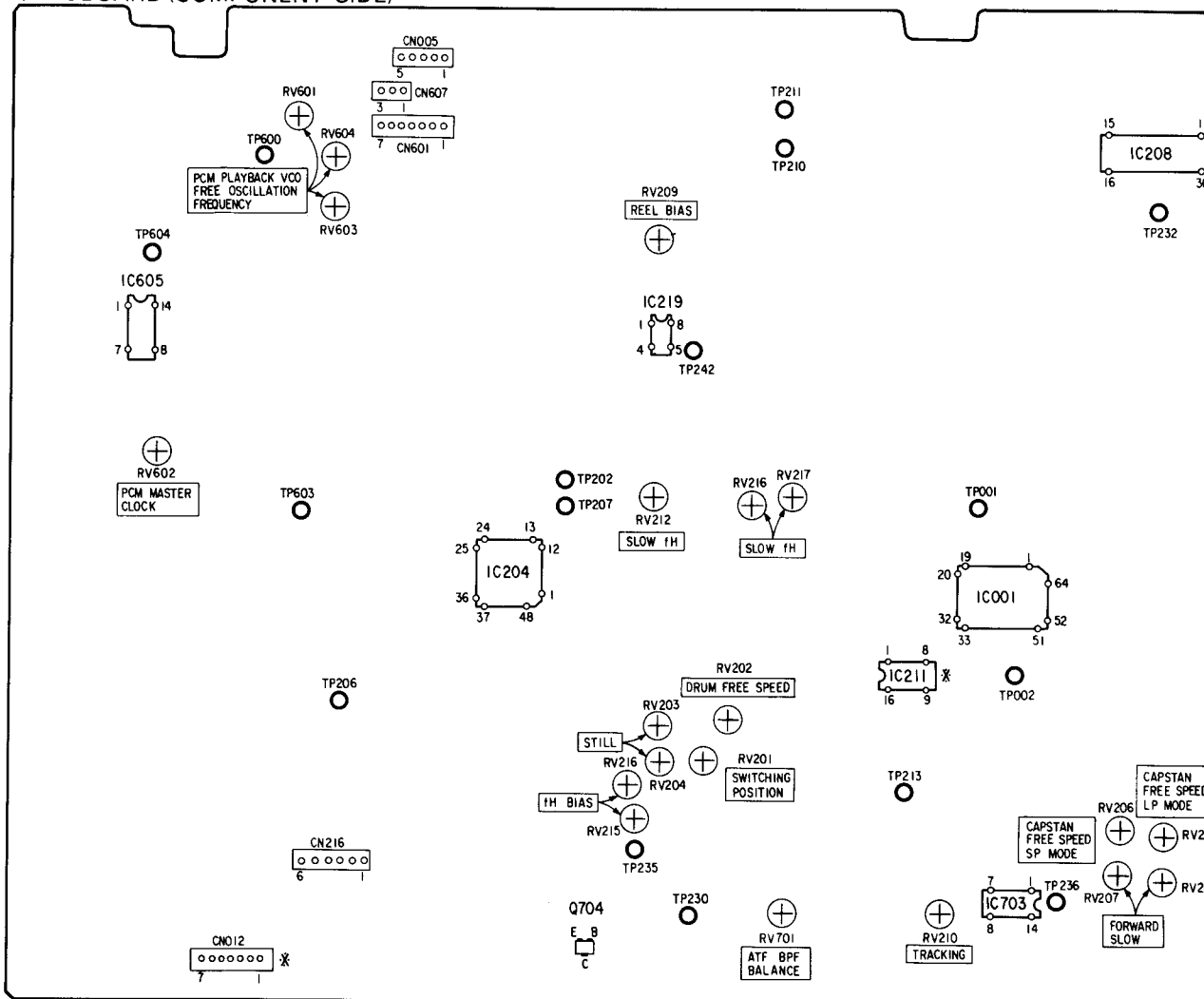
RP-36 BOARD (COMPONENT SIDE)



DT-63 BOARD (SOLDER SIDE)

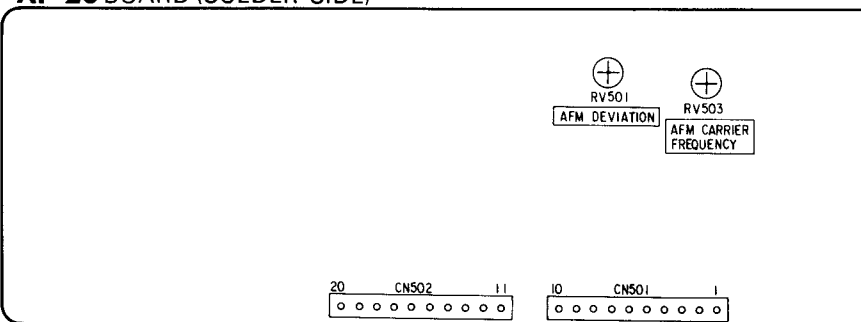


SP-2 BOARD (COMPONENT SIDE)

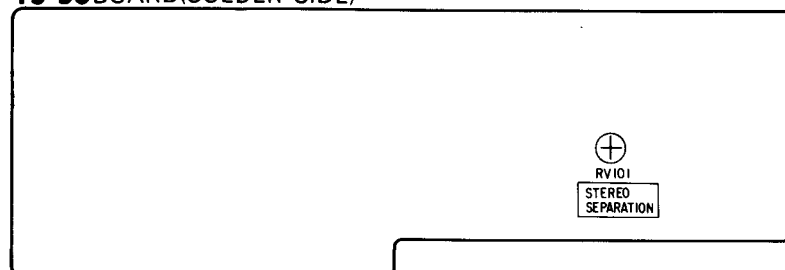


* mark is soldering side.

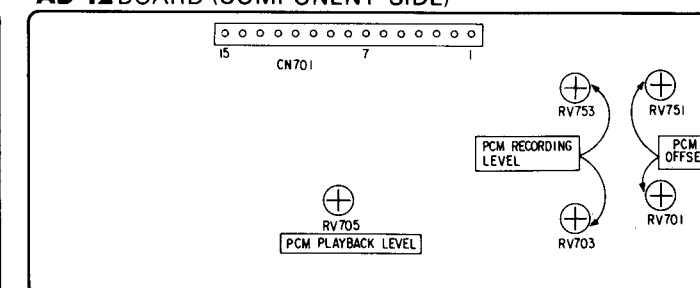
AF-20 BOARD (SOLDER SIDE)



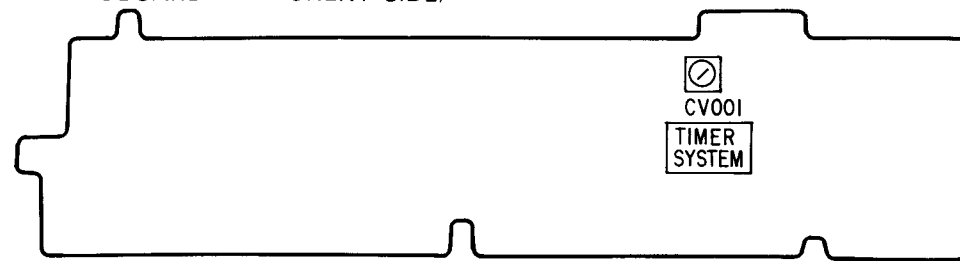
TS-50 BOARD (SOLDER SIDE)



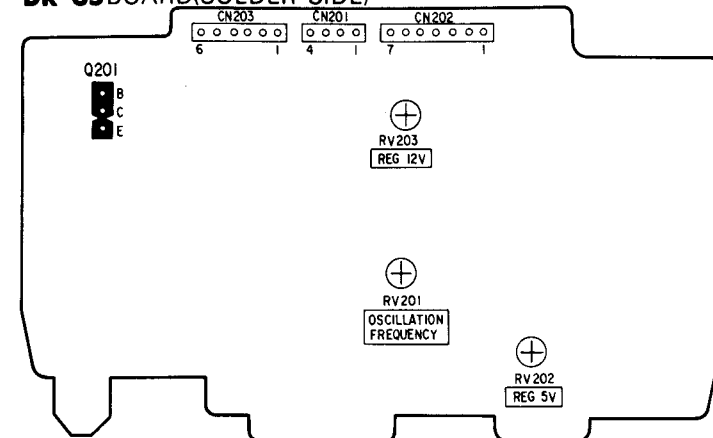
AD-12 BOARD (COMPONENT SIDE)



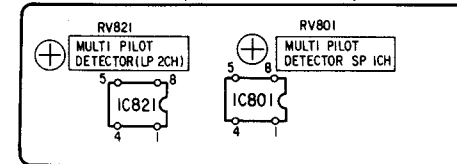
FT-33 BOARD (COMPONENT SIDE)



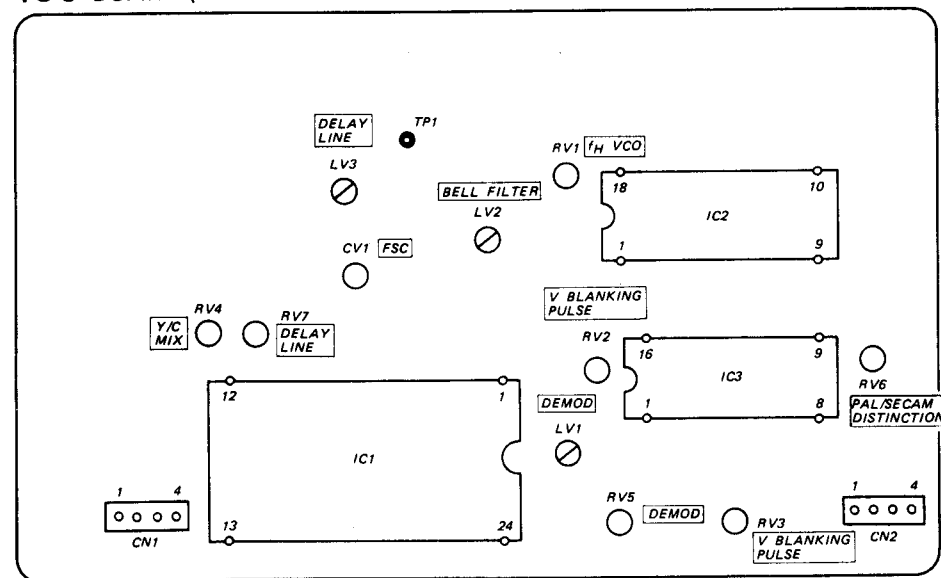
DR-35 BOARD (SOLDER SIDE)



MK-2 BOARD (SOLDER SIDE)



TC-3 BOARD (COMPONENT SIDE)



EV-S650PS

RMT-439

SONY[®]

SERVICE MANUAL

West Germany Model

SUPPLEMENT-1

- File this supplement-1 with the Service Manual.

Subject: The circuits have been changed.

- SP-2 and NR-6 boards are changed, DM-18 board are added, RB-2 and KM-1 boards are deleted due to improvement.
- Parts number of added or changed pc boards are as follows.

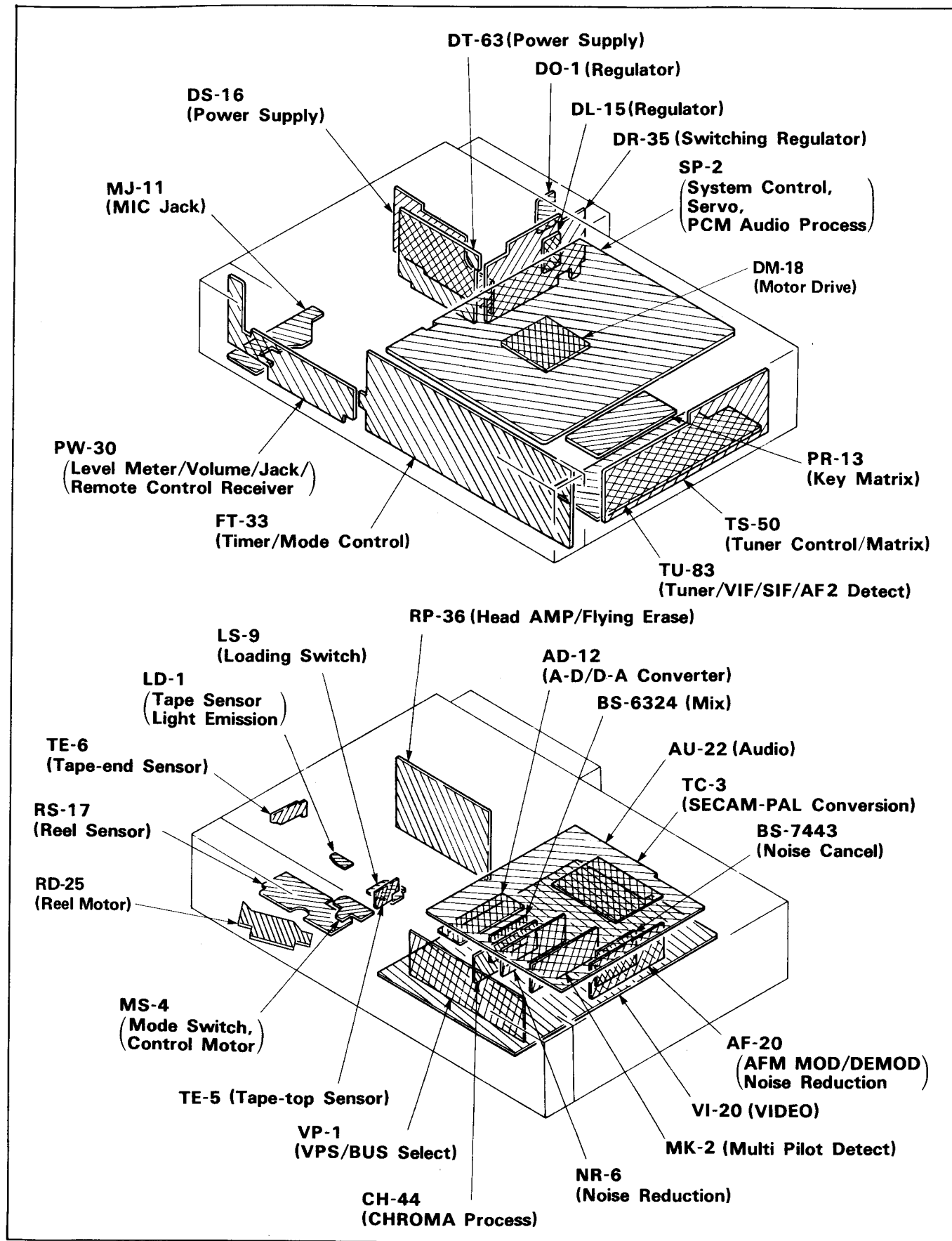
| | |
|-------------|--------------|
| SP-2 board | 1-621-979-16 |
| DM-18 board | 1-625-210-11 |
- Although there is SP-2 board whose part number suffix is 15, refer to printed wiring boards and schematic diagram of part number suffix 16 for it.

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SECTION 1 DIAGRAM

1-1. CIRCUIT BOARDS LOCATION



SECTION 2 PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

2-1. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

Note:

- : indicates a lead wire mounted on the component side.
- : indicates a lead wire mounted on the conductor side.
- ⊗ : Through hole.
- : Pattern from the side which enables seeing.
- : Pattern from the rear side.

- : Circled numbers refer to waveforms.
- : Digital transistor: transistor with resistors.

Refer to the schematic diagram for digital transistor.

SP-2 board: Q010, Q011, Q012, Q013, Q014, Q015, Q020, Q021, Q022, Q054, Q060, Q080, Q085, Q090, Q091, Q098, Q099, Q201, Q202, Q207, Q210, Q211, Q214, Q215, Q226, Q227, Q228, Q229, Q230, Q232, Q233, Q235, Q237, Q238, Q240, Q242, Q245, Q246, Q248, Q249, Q254, Q256, Q263, Q264, Q281, Q282, Q285, Q286, Q287, Q390, Q401, Q458, Q471, Q472, Q485, Q500, Q501, Q502, Q602, Q604, Q605, Q606, Q703, Q712, Q714, Q717, Q777, Q790.

Caution:

Pattern face side: Parts on the pattern face side seen from (Conductor Side) the pattern face are indicated.

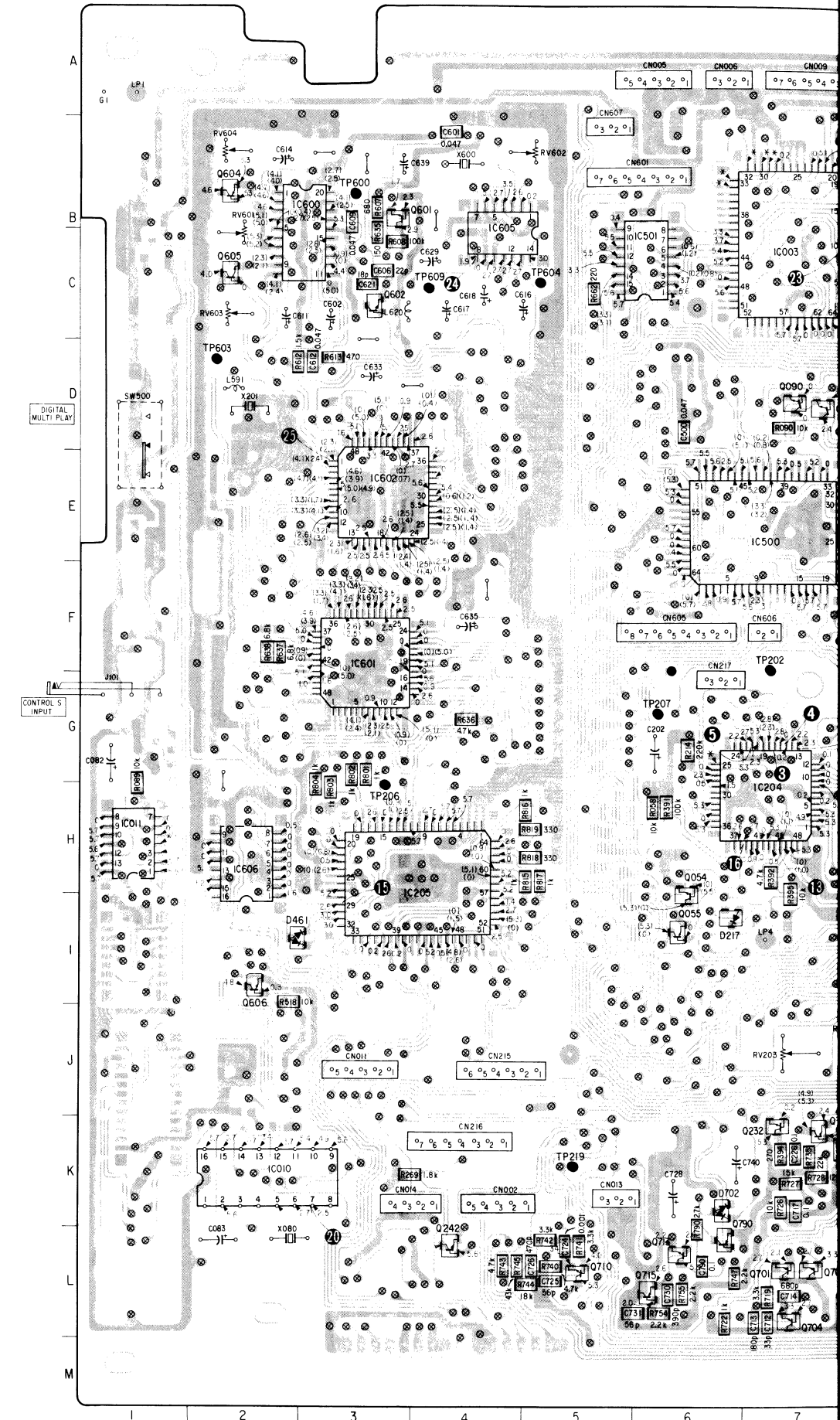
Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

When indicating parts by reference number, please include the board name.

| | | | | | |
|-------|------|-------|------|-------|------|
| CN001 | D-10 | IC206 | D-15 | Q390 | H-28 |
| CN002 | K-4 | IC207 | B-13 | Q401 | K-20 |
| CN003 | H-15 | IC208 | B-15 | Q458 | H-10 |
| CN004 | A-10 | IC210 | K-23 | Q470 | I-9 |
| CN005 | A-6 | IC211 | I-21 | Q471 | J-23 |
| CN006 | A-6 | IC212 | J-21 | Q485 | D-9 |
| CN007 | A-11 | IC213 | J-10 | Q500 | E-26 |
| CN008 | G-15 | IC215 | I-18 | Q501 | F-26 |
| CN009 | A-7 | IC216 | I-25 | Q502 | E-25 |
| CN010 | E-9 | IC220 | B-10 | Q591 | E-30 |
| CN011 | J-3 | IC500 | E-7 | Q601 | B-4 |
| CN012 | M-30 | IC501 | C-6 | Q602 | C-3 |
| CN013 | K-5 | IC502 | I-31 | Q604 | B-2 |
| CN014 | K-3 | IC600 | B-3 | Q605 | C-2 |
| CN015 | A-8 | IC601 | F-3 | Q606 | I-2 |
| CN016 | H-15 | IC602 | E-3 | Q701 | L-7 |
| CN017 | C-13 | IC603 | F-30 | Q702 | L-7 |
| CN018 | A-11 | IC604 | E-29 | Q703 | L-25 |
| CN019 | C-13 | IC605 | B-4 | Q704 | L-7 |
| CN020 | E-15 | IC606 | H-2 | Q705 | K-25 |
| CN021 | E-14 | IC701 | K-21 | Q706 | K-26 |
| CN022 | C-11 | IC703 | L-13 | Q707 | K-7 |
| CN200 | E-9 | | | Q708 | K-26 |
| CN212 | A-14 | J101 | G-1 | Q709 | L-25 |
| CN213 | A-12 | | | Q710 | L-5 |
| CN214 | L-8 | Q010 | H-19 | Q711 | L-27 |
| CN215 | J-4 | Q012 | G-14 | Q712 | K-27 |
| CN216 | K-4 | Q013 | G-14 | Q713 | L-6 |
| CN217 | F-6 | Q014 | D-26 | Q714 | K-27 |
| CN280 | F-9 | Q015 | D-26 | Q715 | L-6 |
| CN601 | B-6 | Q020 | B-21 | Q717 | J-25 |
| CN603 | L-28 | Q021 | B-12 | Q777 | J-20 |
| CN605 | F-6 | Q022 | B-11 | Q790 | K-6 |
| CN606 | F-7 | Q023 | B-21 | | |
| CN607 | A-5 | Q054 | H-6 | RV201 | J-8 |
| | | Q055 | I-6 | RV202 | J-9 |
| D020 | A-21 | Q060 | F-19 | RV203 | J-7 |
| D021 | A-12 | Q080 | J-31 | RV204 | J-7 |
| D060 | E-13 | Q085 | G-31 | RV209 | E-9 |
| D082 | G-31 | Q086 | H-31 | RV210 | L-12 |
| D099 | B-26 | Q090 | D-7 | RV215 | K-8 |
| D203 | B-18 | Q091 | D-7 | RV216 | J-8 |
| D205 | H-22 | Q098 | E-15 | RV601 | B-2 |
| D206 | H-21 | Q099 | G-17 | RV602 | B-5 |
| D208 | H-25 | Q201 | B-21 | RV603 | C-2 |
| D209 | I-10 | Q202 | B-11 | RV604 | B-2 |
| D211 | K-10 | Q203 | B-11 | RV701 | L-10 |
| D212 | K-20 | Q204 | C-21 | | |
| D213 | H-27 | Q205 | K-9 | TP001 | I-13 |
| D214 | J-14 | Q206 | C-14 | TP002 | I-13 |
| D215 | I-20 | Q207 | C-18 | TP003 | E-15 |
| D216 | H-24 | Q208 | D-15 | TP202 | F-7 |
| D217 | I-6 | Q209 | C-13 | TP206 | H-3 |
| D218 | J-13 | Q210 | G-26 | TP207 | G-6 |
| D223 | H-23 | Q211 | J-20 | TP213 | J-11 |
| D226 | J-13 | Q212 | A-9 | TP219 | K-5 |
| D227 | H-27 | Q213 | B-9 | TP228 | I-13 |
| D230 | D-14 | Q214 | G-22 | TP236 | L-9 |
| D232 | J-23 | Q215 | G-10 | TP232 | C-15 |
| D233 | C-22 | Q226 | K-25 | TP235 | K-8 |
| D280 | H-22 | Q227 | K-26 | TP236 | L-14 |
| D390 | B-13 | Q228 | J-22 | TP237 | I-15 |
| D391 | G-29 | Q229 | F-19 | TP240 | K-11 |
| D392 | H-26 | Q230 | E-20 | TP443 | F-12 |
| D393 | H-26 | Q232 | K-7 | TP603 | D-2 |
| D443 | I-12 | Q233 | J-13 | TP604 | C-5 |
| D461 | I-2 | Q235 | H-27 | TP609 | C-4 |
| D470 | I-23 | Q237 | B-24 | | |
| D485 | D-23 | Q238 | G-19 | | |
| D501 | E-26 | Q240 | E-11 | | |
| D502 | G-28 | Q242 | K-4 | | |
| D600 | B-30 | Q245 | K-19 | | |
| D601 | G-30 | Q246 | G-9 | | |
| D603 | G-30 | Q248 | I-14 | | |
| D604 | F-30 | Q249 | K-13 | | |
| D701 | J-22 | Q250 | K-14 | | |
| D702 | K-6 | Q251 | K-14 | | |
| | | Q252 | K-14 | | |
| IC001 | H-13 | Q253 | K-19 | | |
| IC002 | F-14 | Q254 | K-14 | | |
| IC003 | C-7 | Q256 | K-20 | | |
| IC004 | E-12 | Q260 | B-17 | | |
| IC005 | F-22 | Q261 | B-18 | | |
| IC007 | C-13 | Q262 | B-18 | | |
| IC008 | D-12 | Q263 | G-25 | | |
| IC009 | D-13 | Q264 | H-25 | | |
| IC010 | K-2 | Q280 | C-14 | | |
| IC011 | H-1 | Q281 | D-19 | | |
| IC201 | B-9 | Q282 | D-18 | | |
| IC202 | I-17 | Q285 | H-21 | | |
| IC204 | G-7 | Q286 | H-23 | | |
| IC205 | H-4 | Q287 | H-22 | | |

SP-2 (SYSTEM CONTROL) PRINTED WIRING BOARD —Ref. No. SP-2 BOARD: 4,000 series—

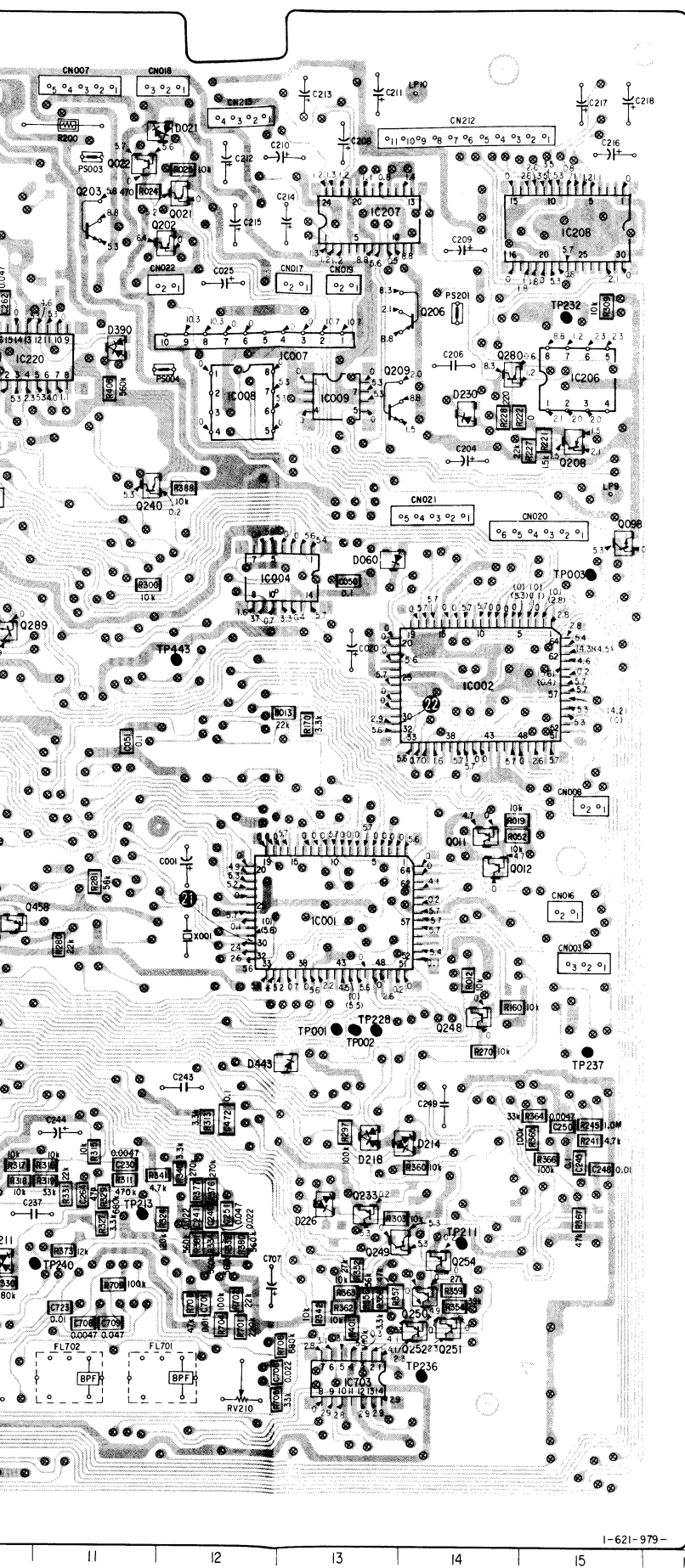
SP-2 BOARD (COMPONENT SIDE)



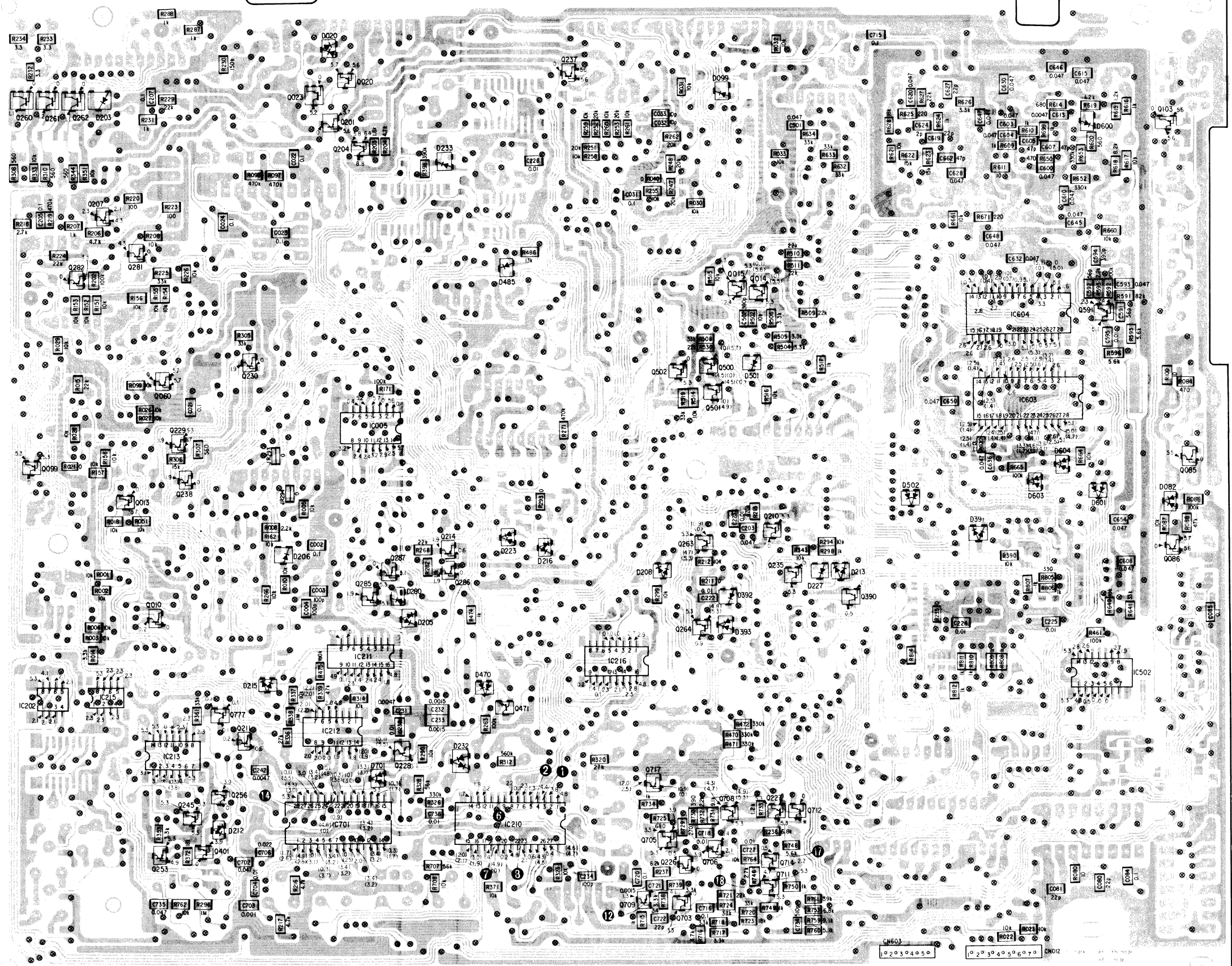
—Ref. No. SP-2 BOARD : 4,000 series—

1-621-979-

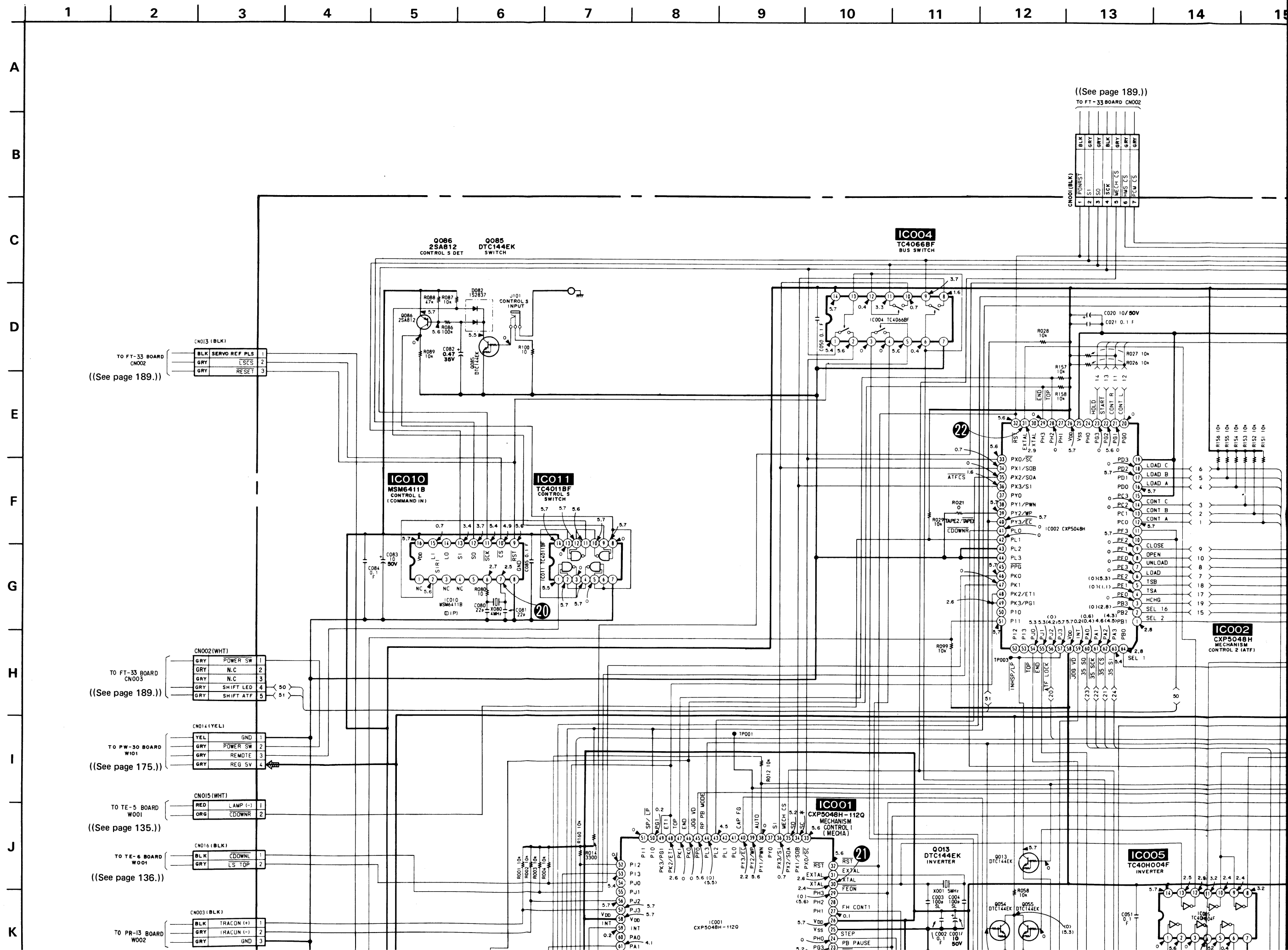
16

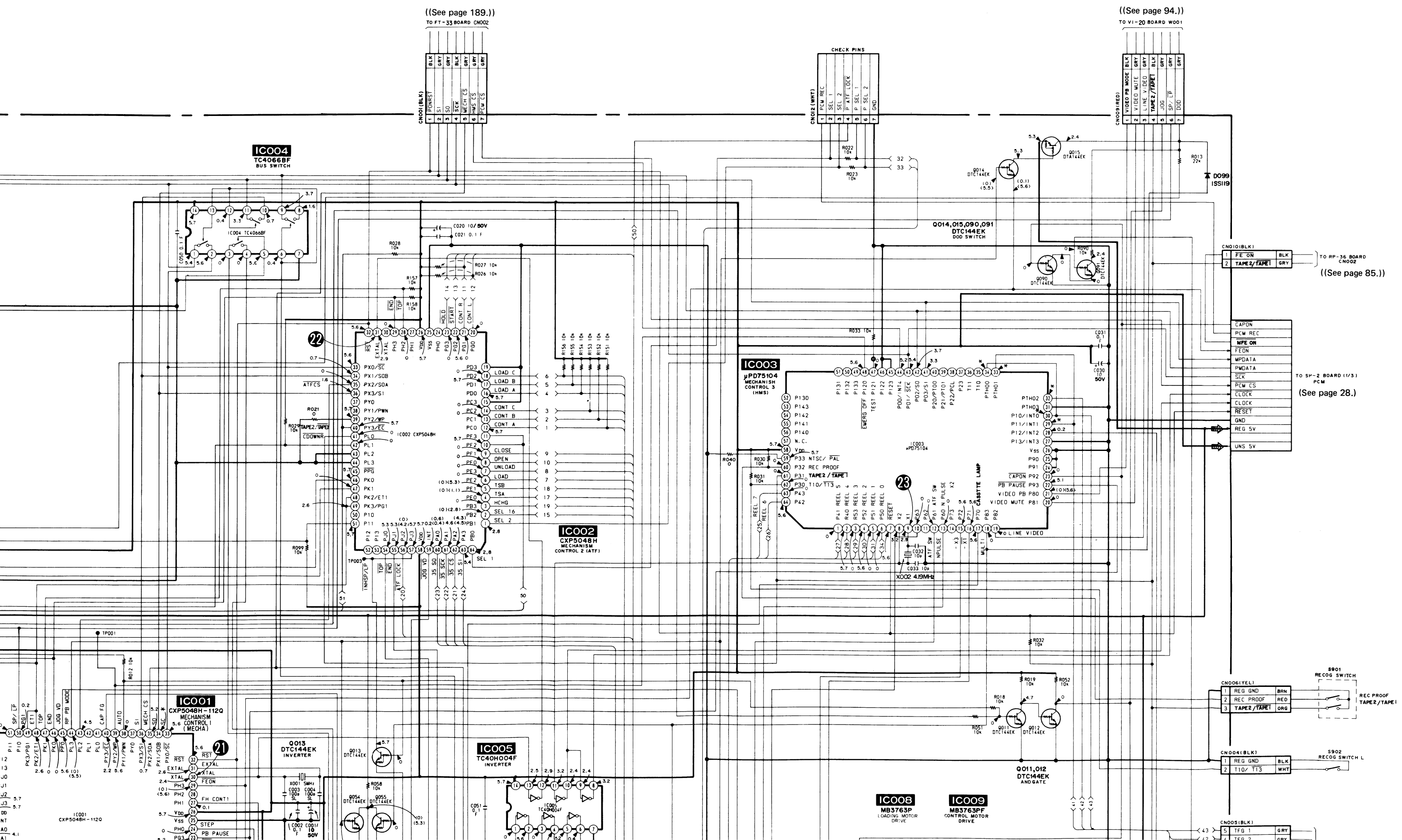


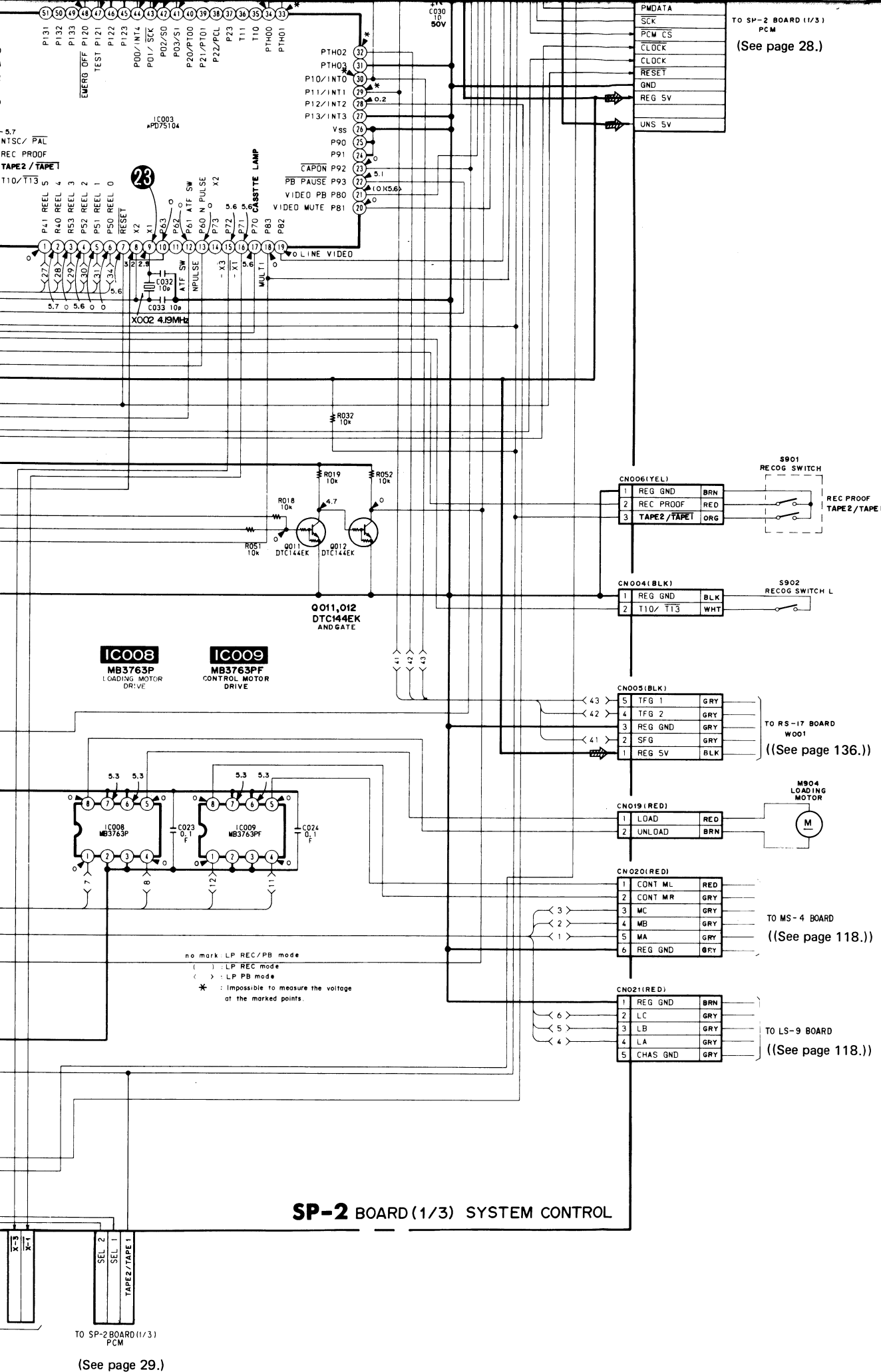
SP-2 BOARD (CONDUCTOR SIDE)



—Ref. No. SP-2 BOARD : 4,000 series—







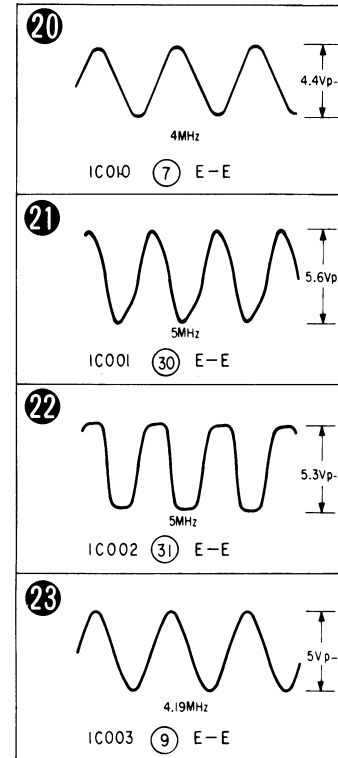
Note:

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF.
50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- : internal component.
- : adjustment for repair.
- : B + Line
- : IN/OUT direction of (+, -) B line.
- Circled numbers refer to waveforms.
- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- In case of page reference, pay attention to the following.
() : Page of present SUPPLEMENT-1.
() : Page for SERVICE MANUAL unit.

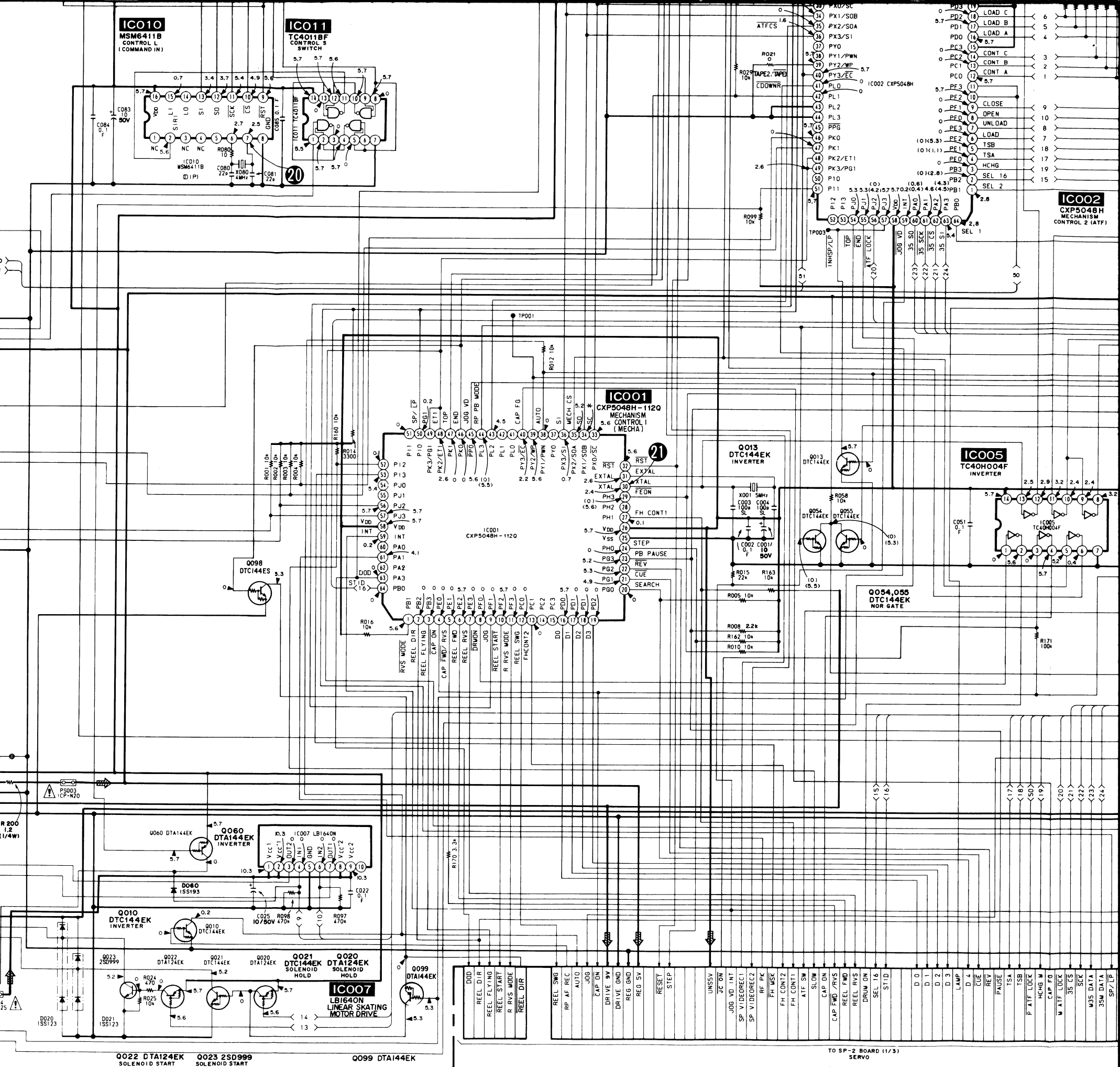
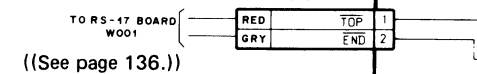
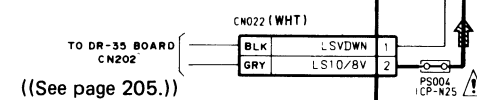
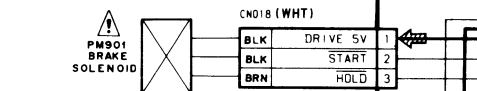
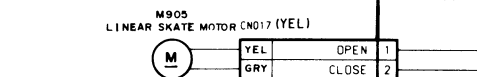
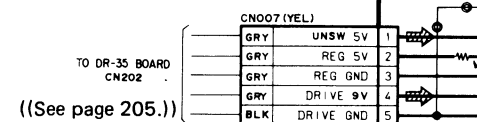
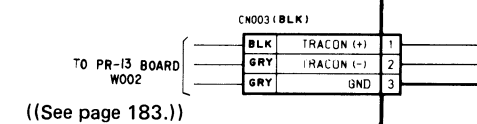
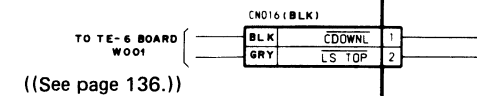
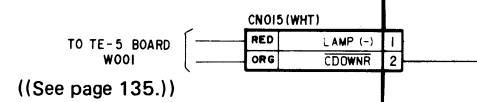
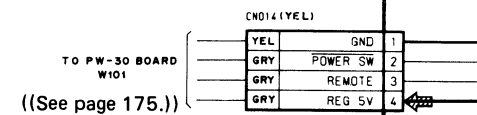
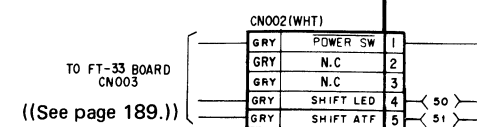
Note: The components identified by mark or dotted line with mark are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

SP-2 BOARD (SYSCON)

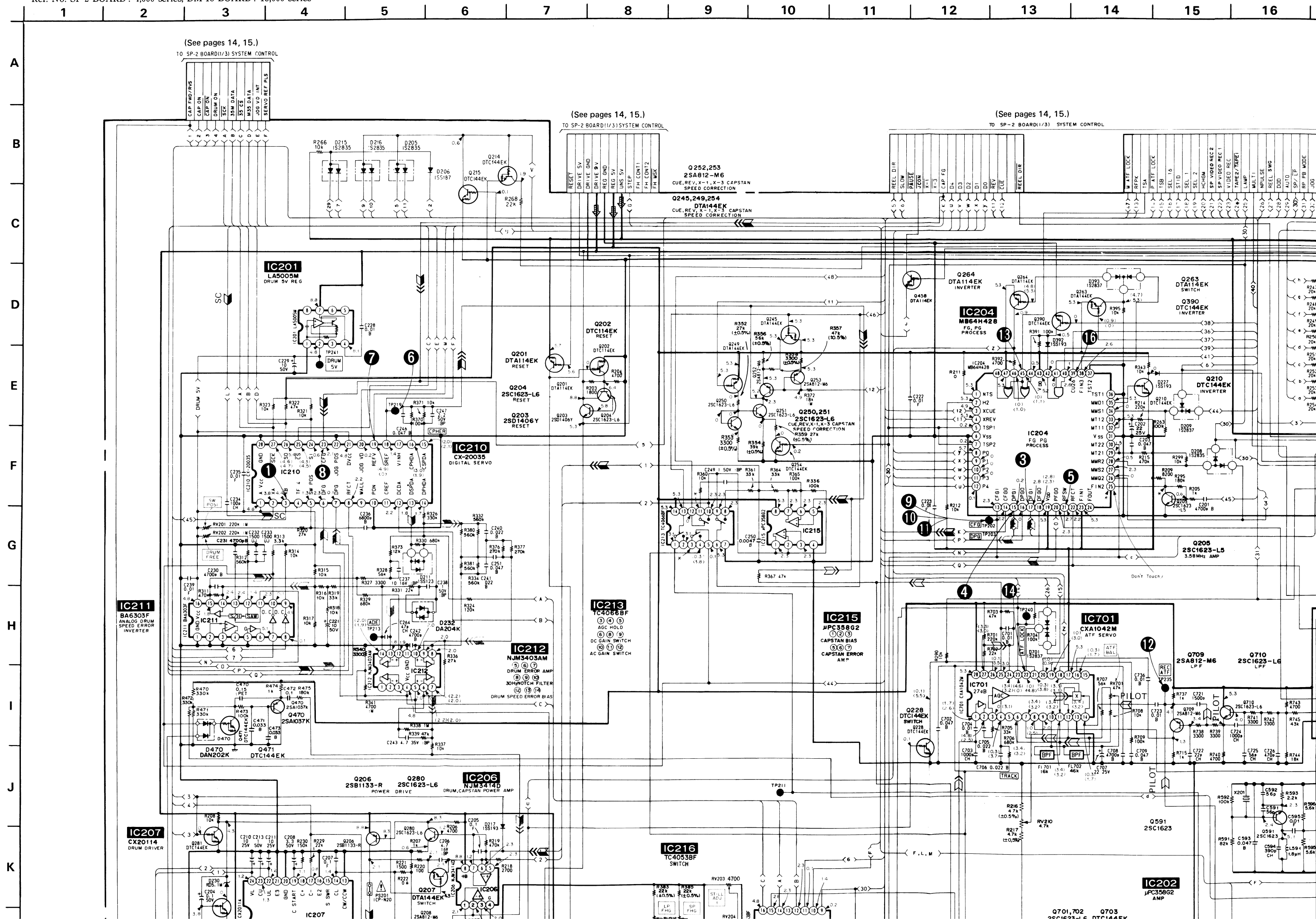


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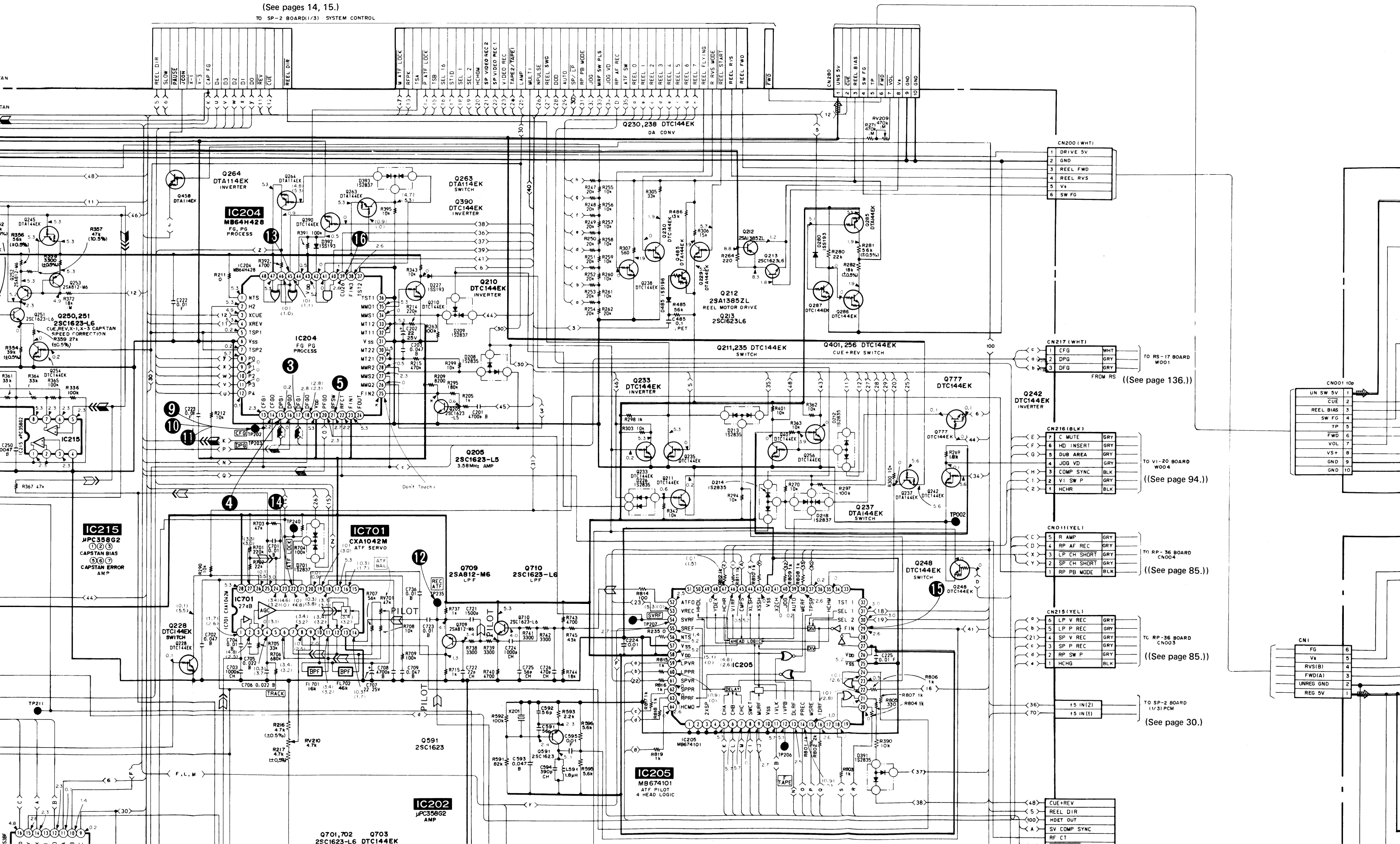









—Ref. No. SP-2 BOARD: 4,000 series, DM-18 BOARD: 15,000 series—

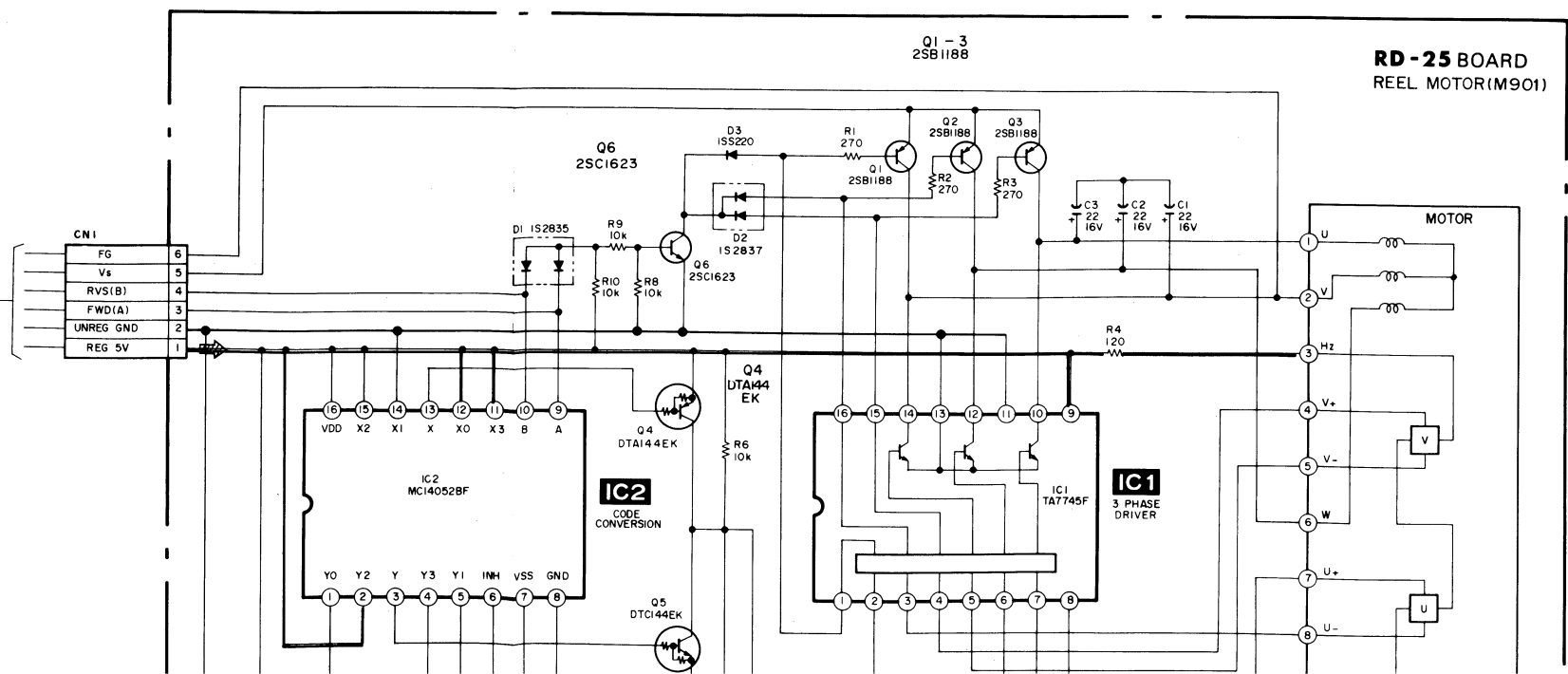
—Ref. No. SP-2 BOARD: 4,000 series, DM-18 BOARD: 15,000 series—

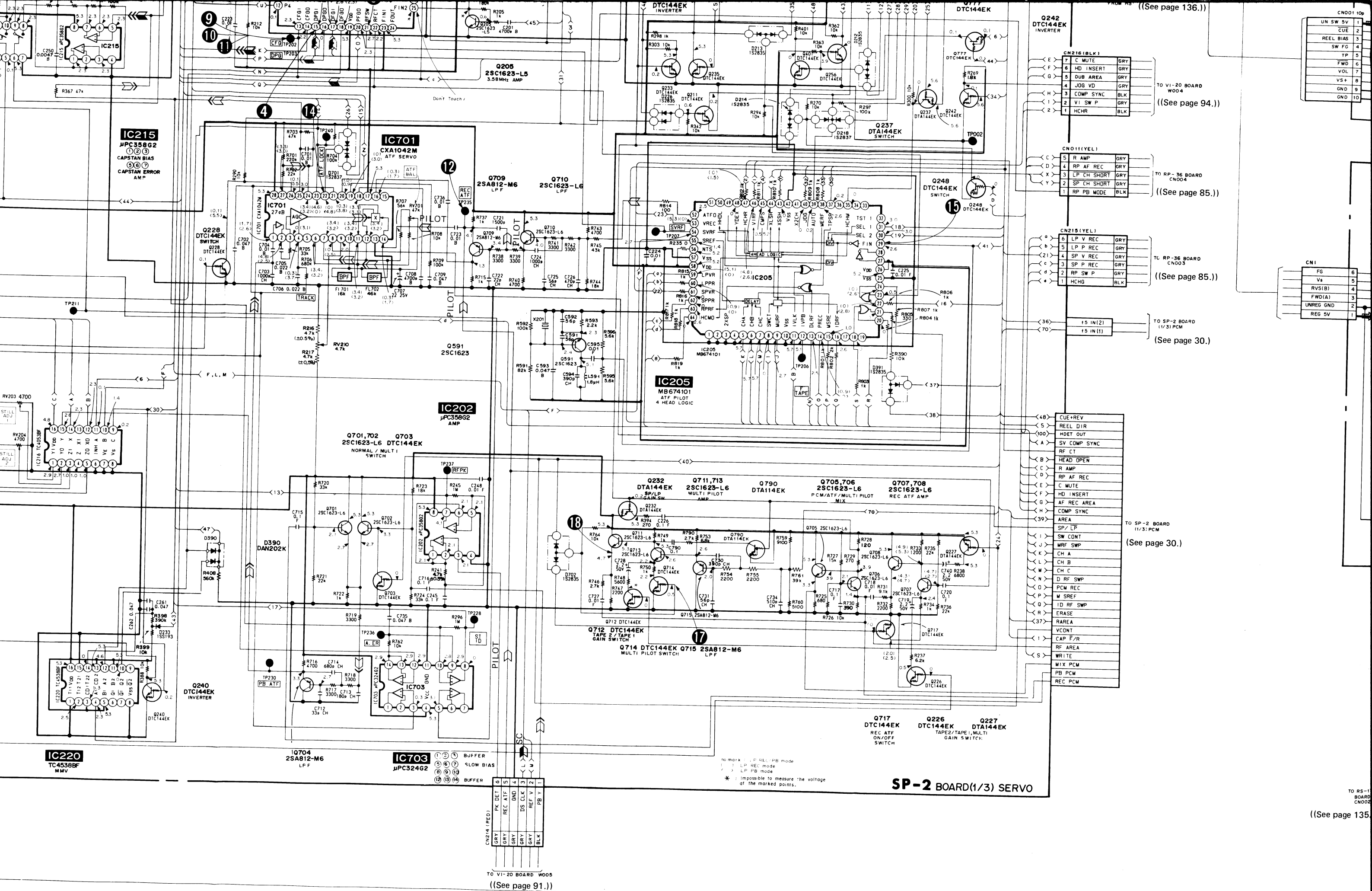


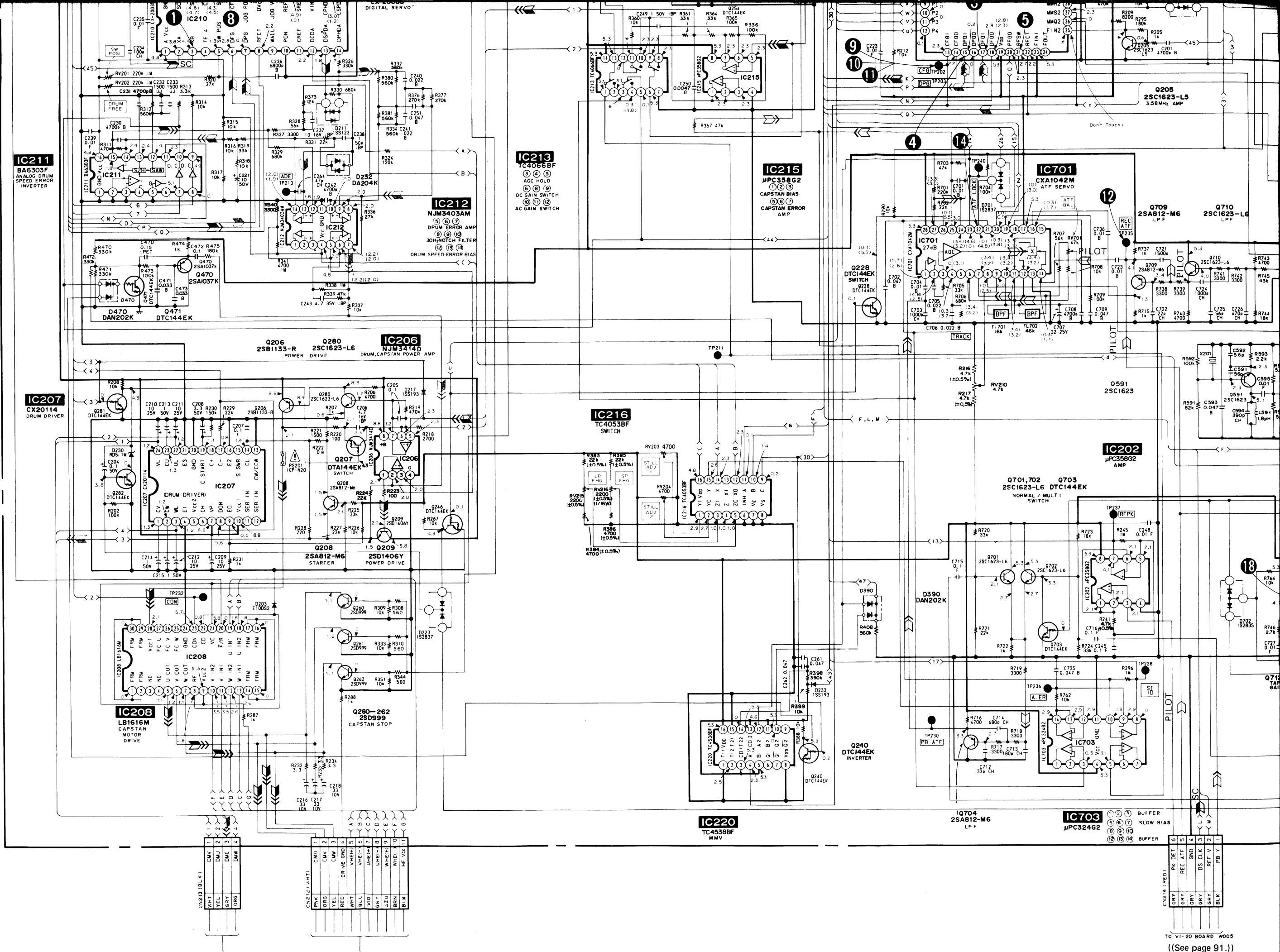
(See pages 14, 15.)
TO SP-2 BOARD(1/3) SYSTEM CONTROL



| | REC | REC/PB | PB |
|---------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| | | | |
| | | | |
| | | | |
| Capstan speed servo | |  | |
| Capstan phase servo |  | |  |
| Capstan servo (speed and phase) | |  | |
| Ref. signal |  |  |  |





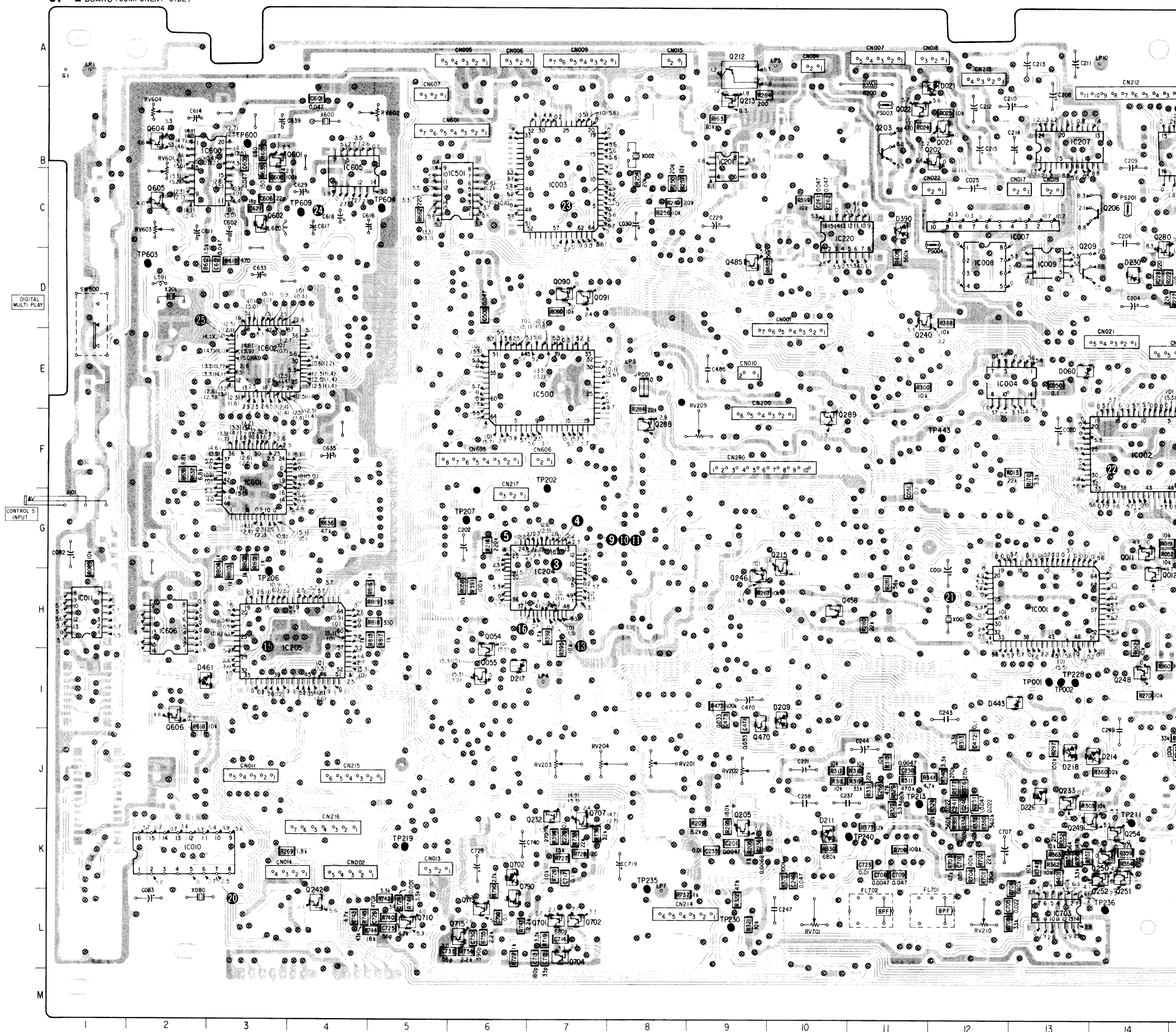


TO VI-20 BOARD W005
((See page 91.))

| | | | | | | | | | | | | |
|-------|------|------|------|-------|------|-------|------|------|------|------|------|-------|
| CN001 | D-10 | D020 | A-21 | D601 | G-30 | IC603 | F-30 | Q209 | C-13 | Q282 | D-18 | Q790 |
| CN002 | K-4 | D021 | A-12 | D603 | G-30 | IC604 | E-29 | Q210 | G-26 | Q285 | H-21 | RV201 |
| CN003 | H-15 | D060 | E-13 | D604 | F-30 | IC605 | B-4 | Q211 | J-20 | Q286 | H-23 | RV202 |
| CN004 | A-10 | D082 | G-31 | D701 | J-22 | IC606 | H-2 | Q212 | A-9 | Q287 | H-22 | RV203 |
| CN005 | A-6 | D099 | B-26 | D702 | K-6 | IC701 | K-21 | Q213 | B-9 | Q288 | H-28 | RV204 |
| CN006 | A-6 | D203 | B-18 | | | IC703 | L-13 | Q214 | G-22 | Q401 | K-20 | RV209 |
| CN007 | A-11 | D205 | H-22 | IC001 | H-13 | | | Q215 | G-10 | Q458 | H-10 | RV210 |
| CN008 | G-15 | D206 | H-21 | IC002 | F-14 | J101 | G-1 | Q226 | K-25 | Q470 | I-9 | RV215 |
| CN009 | A-7 | D208 | H-25 | IC003 | C-7 | | | Q227 | K-26 | Q471 | J-23 | RV216 |
| CN010 | E-9 | D209 | I-10 | IC004 | E-12 | Q010 | H-19 | Q228 | J-22 | Q485 | D-9 | RV601 |
| CN011 | J-3 | D211 | K-10 | IC005 | F-22 | Q012 | G-14 | Q229 | F-19 | Q500 | E-26 | RV602 |
| CN012 | M-30 | D212 | K-20 | IC007 | C-13 | Q013 | G-14 | Q230 | E-20 | Q501 | F-26 | RV603 |
| CN013 | K-5 | D213 | H-27 | IC008 | D-12 | Q014 | D-26 | Q232 | K-7 | Q502 | E-25 | RV604 |
| CN014 | K-3 | D214 | J-14 | IC009 | D-13 | Q015 | D-26 | Q233 | J-13 | Q591 | E-30 | RV701 |
| CN015 | A-8 | D215 | I-20 | IC010 | H-1 | Q020 | B-21 | Q235 | H-27 | Q601 | B-4 | TP001 |
| CN016 | H-15 | D216 | H-24 | IC011 | K-2 | Q021 | B-12 | Q237 | B-24 | Q602 | C-3 | TP002 |
| CN017 | C-13 | D217 | I-6 | IC201 | B-9 | Q022 | B-11 | Q238 | G-19 | Q604 | B-2 | TP003 |
| CN018 | A-11 | D218 | J-13 | IC202 | I-17 | Q023 | B-21 | Q240 | E-11 | Q605 | C-2 | TP202 |
| CN019 | C-13 | D223 | H-23 | IC204 | G-7 | Q054 | H-6 | Q242 | K-4 | Q606 | I-2 | TP206 |
| CN020 | E-15 | D226 | J-13 | IC205 | H-4 | Q055 | I-6 | Q245 | K-19 | Q701 | L-7 | TP207 |
| CN021 | E-14 | D227 | H-27 | IC206 | D-15 | Q060 | F-19 | Q246 | G-9 | Q702 | L-7 | TP213 |
| CN022 | C-11 | D230 | D-14 | IC207 | B-13 | Q080 | J-31 | Q248 | I-14 | Q703 | L-25 | TP219 |
| CN200 | E-9 | D232 | J-23 | IC208 | B-15 | Q085 | G-31 | Q249 | K-13 | Q704 | L-7 | TP228 |
| CN212 | A-14 | D233 | C-22 | IC210 | K-23 | Q086 | H-31 | Q250 | K-14 | Q705 | K-25 | TP232 |
| CN213 | A-12 | D280 | H-22 | IC211 | I-21 | Q090 | D-7 | Q251 | K-14 | Q706 | K-26 | TP235 |
| CN214 | L-8 | D390 | B-13 | IC212 | J-21 | Q091 | D-7 | Q252 | K-14 | Q707 | K-7 | TP236 |
| CN215 | J-4 | D391 | G-29 | IC213 | J-10 | Q098 | E-15 | Q253 | K-19 | Q708 | K-26 | TP237 |
| CN216 | K-4 | D392 | H-26 | IC215 | I-18 | Q099 | G-17 | Q254 | K-14 | Q709 | L-25 | TP240 |
| CN217 | F-6 | D393 | H-26 | IC216 | I-25 | Q201 | B-21 | Q256 | K-20 | Q710 | L-5 | TP443 |
| CN280 | F-9 | D443 | I-12 | IC220 | B-10 | Q202 | B-11 | Q260 | B-17 | Q711 | L-27 | TP603 |
| CN601 | B-6 | D461 | I-2 | IC500 | E-7 | Q203 | B-11 | Q261 | B-18 | Q712 | K-27 | TP604 |
| CN603 | L-28 | D470 | I-23 | IC501 | C-6 | Q204 | C-21 | Q262 | B-18 | Q713 | K-6 | TP609 |
| CN605 | F-6 | D485 | D-23 | IC502 | B-31 | Q205 | K-9 | Q263 | G-25 | Q714 | K-27 | |
| CN606 | F-7 | D501 | E-26 | IC600 | I-3 | Q206 | C-14 | Q264 | H-25 | Q715 | L-6 | |
| CN607 | A-5 | D502 | G-28 | IC601 | F-3 | Q207 | C-18 | Q280 | C-14 | Q717 | J-25 | |
| | | D600 | B-30 | IC602 | E-3 | Q208 | D-15 | Q281 | D-19 | Q777 | J-20 | |

SP-2 (SERVO), DM-18 (MOTOR DRIVE) PRINTED WIRING BOARDS
 —Ref. No. SP-2 BOARD: 4,000 series, DM-18 BOARD: 15,000 series—

SP-2 BOARD (COMPONENT SIDE)

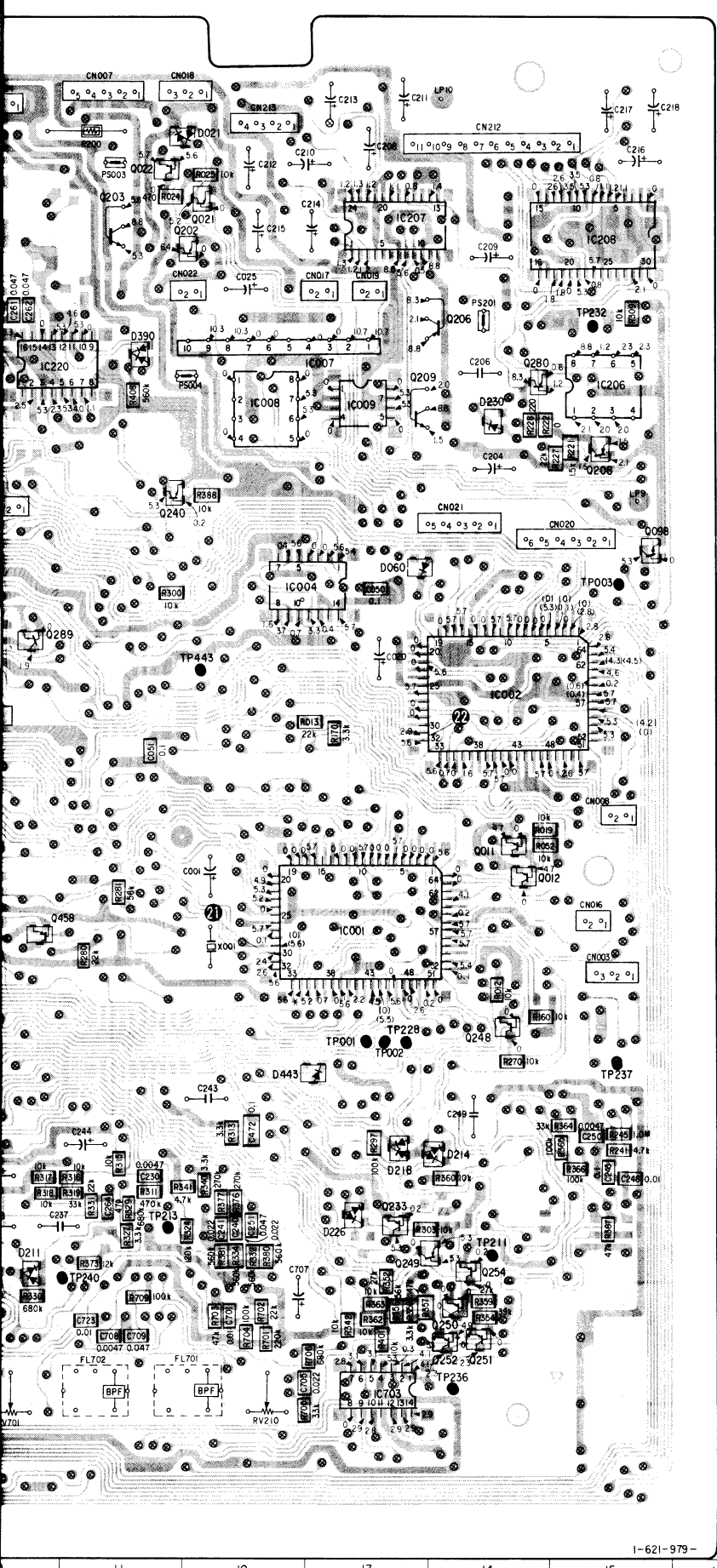


| | | | | | | | |
|-------|------|------|------|------|------|-------|------|
| IC603 | F-30 | Q209 | C-13 | Q282 | D-18 | Q790 | K-6 |
| IC604 | E-29 | Q210 | G-26 | Q285 | H-21 | RV201 | J-8 |
| IC605 | B-4 | Q211 | J-20 | Q286 | H-23 | RV202 | J-9 |
| IC606 | H-2 | Q212 | A-9 | Q287 | H-22 | RV203 | J-7 |
| IC701 | K-21 | Q213 | B-9 | Q390 | H-28 | RV204 | J-7 |
| IC703 | L-13 | Q214 | G-22 | Q401 | K-20 | RV209 | E-9 |
| | | Q215 | G-10 | Q458 | H-10 | RV210 | L-12 |
| J101 | G-1 | Q226 | K-25 | Q470 | I-9 | RV215 | K-8 |
| | | Q227 | K-26 | Q471 | J-23 | RV216 | J-8 |
| Q010 | H-19 | Q228 | J-22 | Q485 | D-9 | RV601 | B-2 |
| Q012 | G-14 | Q229 | F-19 | Q500 | E-26 | RV602 | B-5 |
| Q013 | G-14 | Q230 | E-20 | Q501 | F-26 | RV603 | C-2 |
| Q014 | D-26 | Q232 | K-7 | Q502 | E-25 | RV604 | B-2 |
| Q015 | D-26 | Q233 | J-13 | Q591 | E-30 | RV701 | L-10 |
| Q020 | B-21 | Q235 | H-27 | Q601 | B-4 | | |
| Q021 | B-12 | Q237 | B-24 | Q602 | C-3 | TP001 | I-13 |
| Q022 | B-11 | Q238 | G-19 | Q604 | B-2 | TP002 | I-13 |
| Q023 | B-21 | Q240 | E-11 | Q605 | C-2 | TP003 | E-15 |
| Q054 | H-6 | Q242 | K-4 | Q606 | I-2 | TP202 | F-7 |
| Q055 | I-6 | Q245 | K-19 | Q701 | L-7 | TP206 | H-3 |
| Q060 | F-19 | Q246 | G-9 | Q702 | L-7 | TP207 | G-6 |
| Q080 | J-31 | Q248 | I-14 | Q703 | L-25 | TP213 | J-11 |
| Q085 | G-31 | Q249 | K-13 | Q704 | L-7 | TP219 | K-5 |
| Q086 | H-31 | Q250 | K-14 | Q705 | K-25 | TP228 | I-13 |
| Q090 | D-7 | Q251 | K-14 | Q706 | K-26 | TP236 | L-9 |
| Q091 | D-7 | Q252 | K-14 | Q707 | K-7 | TP232 | C-15 |
| Q098 | E-15 | Q253 | K-19 | Q708 | K-26 | TP235 | K-8 |
| Q099 | G-17 | Q254 | K-14 | Q709 | L-25 | TP236 | L-14 |
| Q201 | B-21 | Q256 | K-20 | Q710 | L-5 | TP237 | I-15 |
| Q202 | B-11 | Q260 | B-17 | Q711 | L-27 | TP240 | K-11 |
| Q203 | B-11 | Q261 | B-18 | Q712 | K-27 | TP443 | F-12 |
| Q204 | C-21 | Q262 | B-18 | Q713 | L-6 | TP603 | D-2 |
| Q205 | K-9 | Q263 | G-25 | Q714 | K-27 | TP604 | C-5 |
| Q206 | C-14 | Q264 | H-25 | Q715 | L-6 | | |
| Q207 | C-18 | Q280 | C-14 | Q717 | J-25 | | |
| Q208 | D-15 | Q281 | D-19 | Q777 | J-20 | | |

Note:

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF.
50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⎓ : nonflammable resistor.
- ⎓ : fusible resistor.
- : panel designation.
- △ : internal component.

- : adjustment for repair.
- : B + Line
- ↔ : IN/OUT direction of
- : Circled numbers refer to wav
- Voltages are dc between gro
- Readings are taken with a col
- Readings are taken with a d
- Voltage variations may be
- tolerances.
- In case of page reference, pay
- () : Page of present S
- (()) : Page for SERVICE

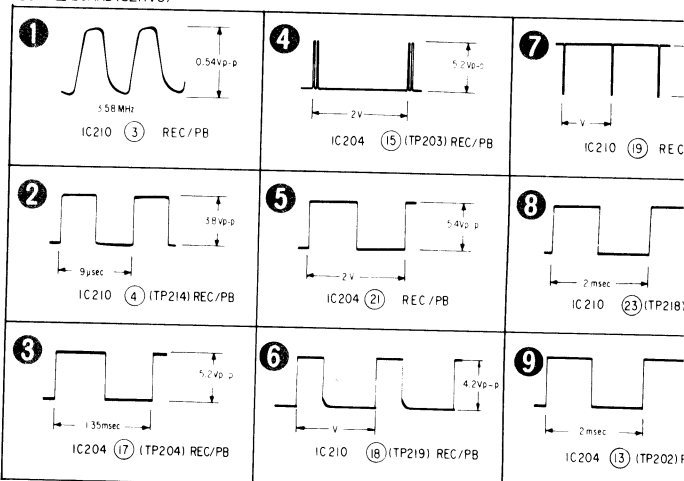


Note:

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
k Ω : 1000 Ω , M Ω : 1000k Ω .
- All capacitors are in μ F unless otherwise noted. pF: μ F.
50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- Δ : internal component.

- : adjustment for repair
- : B+ Line
- : IN/OUT direction of (+, -) B line.
- Circled numbers refer to waveforms.
- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production tolerances.
- In case of page reference, pay attention to the following.
() : Page of present SUPPLEMENT-1.
() : Page for SERVICE MANUAL unit.

SP-2 BOARD (SERVO)



CTOR SIDE)



CN001 A-2
D001 C-4
D009 A-1
D010 B-1
IC001 B-3
IC002 C-2
IC003 C-4
Q007 B-5

Note:

- : Circled reference
- : Digital reference
- : SP-2 board
- : Q021
- : Q099
- : Q220
- : Q264
- : Q471
- : Q606
- : DM-18

Caution
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s refer to waveforms.

between ground and measurement points.

ken with a color-bar signal input.

ken with a digital multimeter (DC10MΩ).

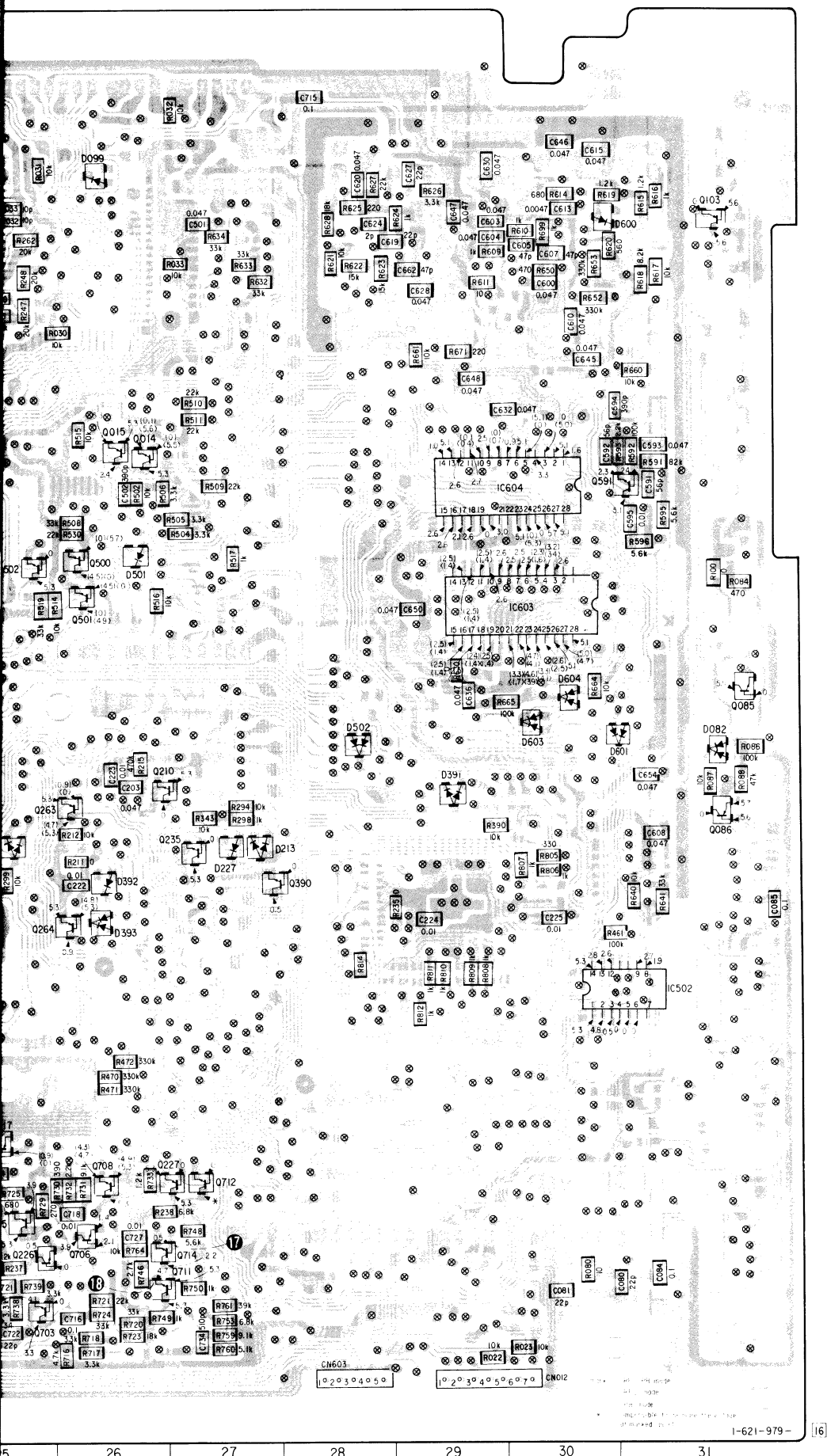
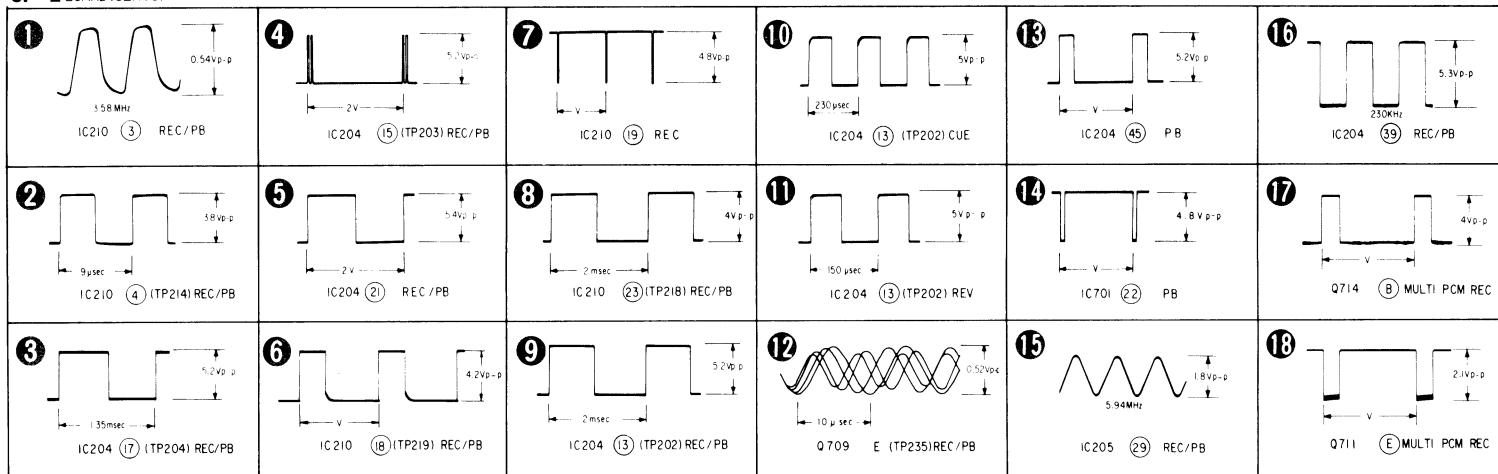
ions may be noted due to normal production

reference, pay attention to the following.

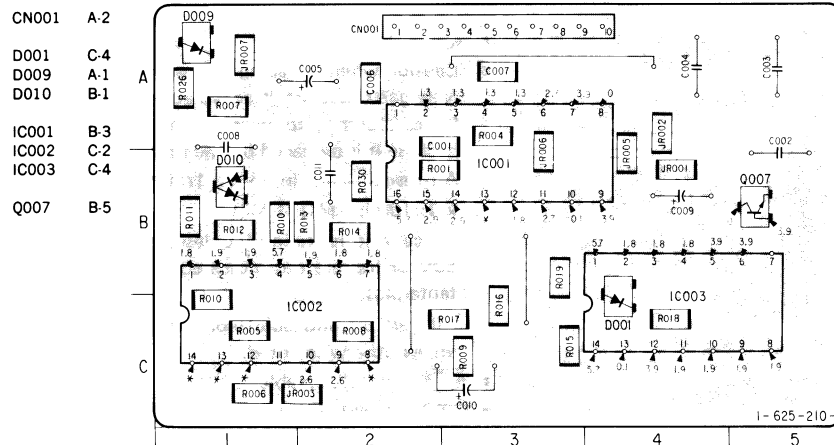
of present SUPPLEMENT-1.

for SERVICE MANUAL unit.

SP-2 BOARD (SERVO)



DM-18 BOARD



Note:

- : indicates a lead wire mounted on the component side.
- : indicates a lead wire mounted on the conductor side.
- ⊗ : Through hole.
- ⊙ : Pattern from the side which enables seeing.

- Circled numbers refer to waveforms.
- Digital transistor: transistor with resistors.

Refer to the schematic diagram for digital transistor.

SP-2 board: Q010, Q011, Q012, Q013, Q014, Q015, Q020, Q021, Q022, Q054, Q060, Q080, Q085, Q090, Q091, Q098, Q099, Q201, Q202, Q207, Q210, Q211, Q214, Q215, Q226, Q227, Q228, Q229, Q230, Q232, Q233, Q235, Q237, Q238, Q240, Q242, Q245, Q246, Q248, Q249, Q254, Q256, Q263, Q264, Q281, Q282, Q285, Q286, Q287, Q390, Q401, Q458, Q471, Q472, Q485, Q500, Q501, Q502, Q602, Q604, Q605, Q606, Q703, Q712, Q714, Q717, Q777, Q790.

DM-18 board: Q007.








Caution:

Pattern face side: Parts on the pattern face side seen from (Conductor Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

When indicating parts by reference number, please include the board name.

SP-2 (PCM AUDIO PROCESS) SCHEMATIC DIAGRAM
—Ref. No. SP-2 BOARD: 4,000 series—

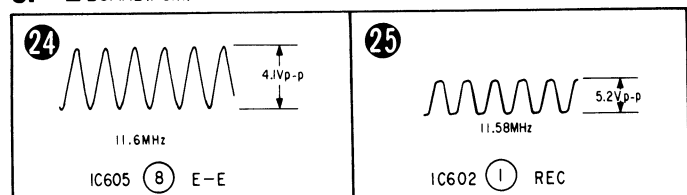
Note:

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/10W unless otherwise noted.
k Ω : 1000 Ω , M Ω : 1000k Ω .
- All capacitors are in μ F unless otherwise noted. pF: μ F.
50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
-  : nonflammable resistor.
-  : fusible resistor.
-  : panel designation.
-  : internal component.
-  : adjustment for repair.
-  : B+ Line
-  : IN/OUT direction of (+, -) B line.
- Circled numbers refer to waveforms.
- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MS Ω).
- Voltage variations may be noted due to normal production tolerances.
- In case of page reference, pay attention to the following.
(): Page of present SUPPLEMENT-1.
(()): Page for SERVICE MANUAL unit.

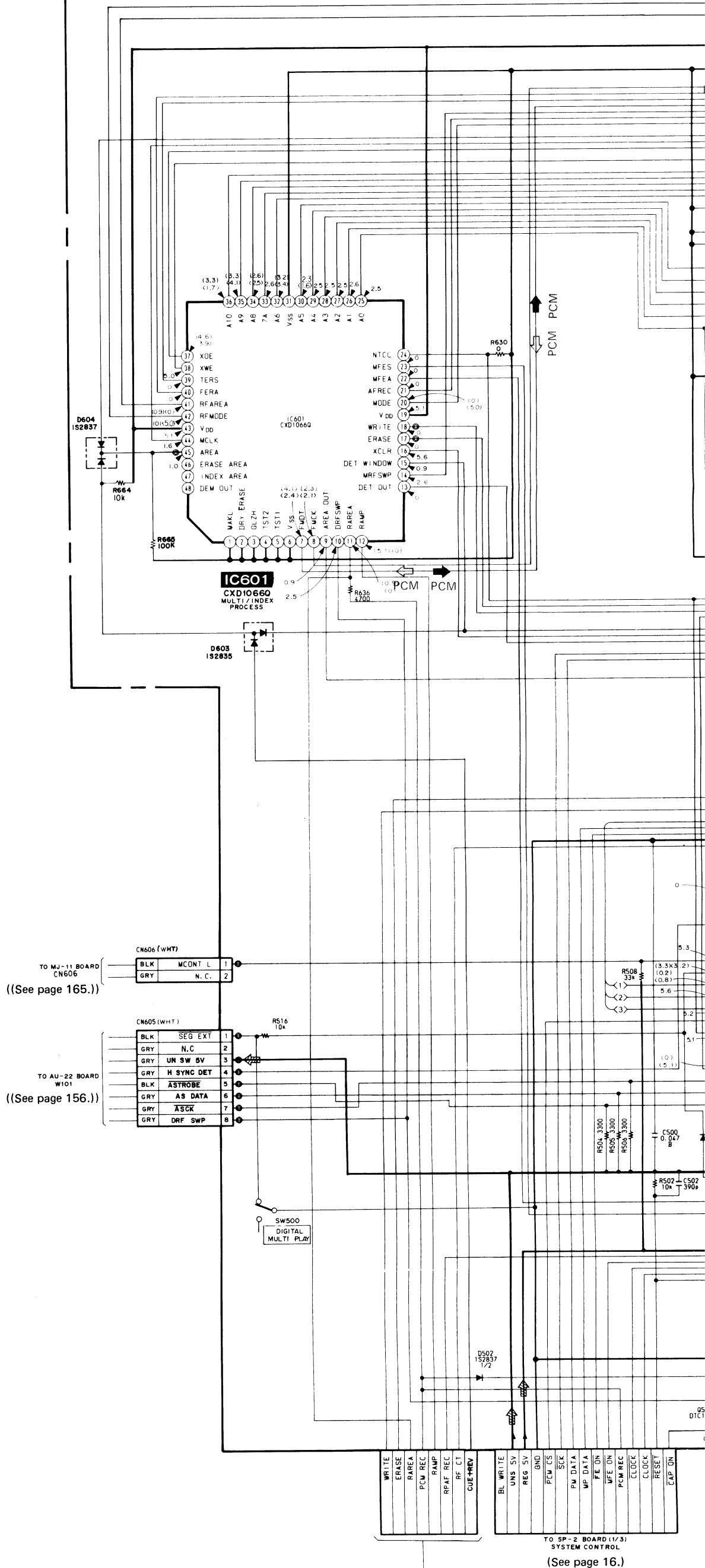
When indicating parts by reference number, please include the board name.

- Signal path
➡ : REC AUDIO Signal
➡ : PB AUDIO Signal

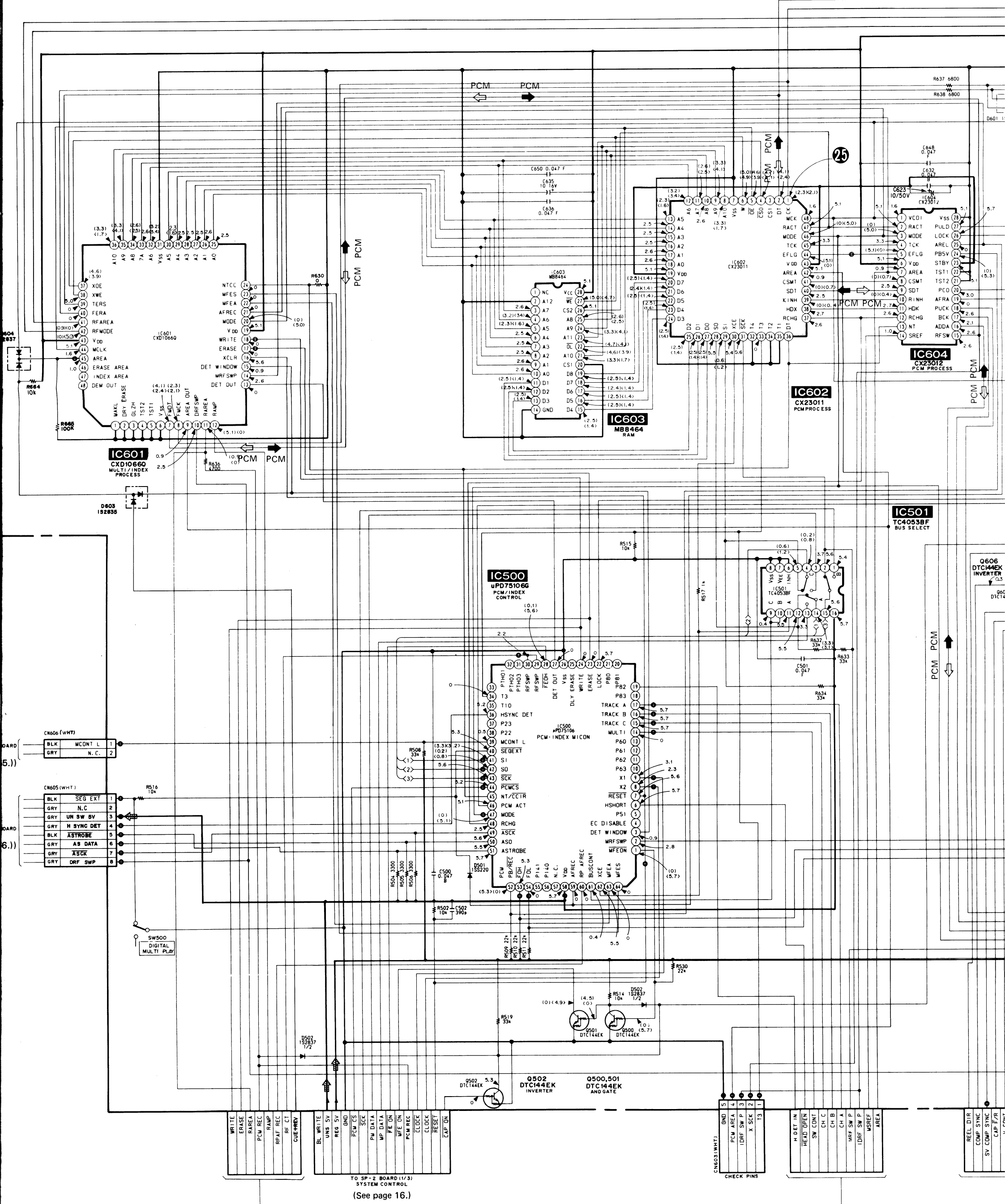
SP-2 BOARD(PCM)

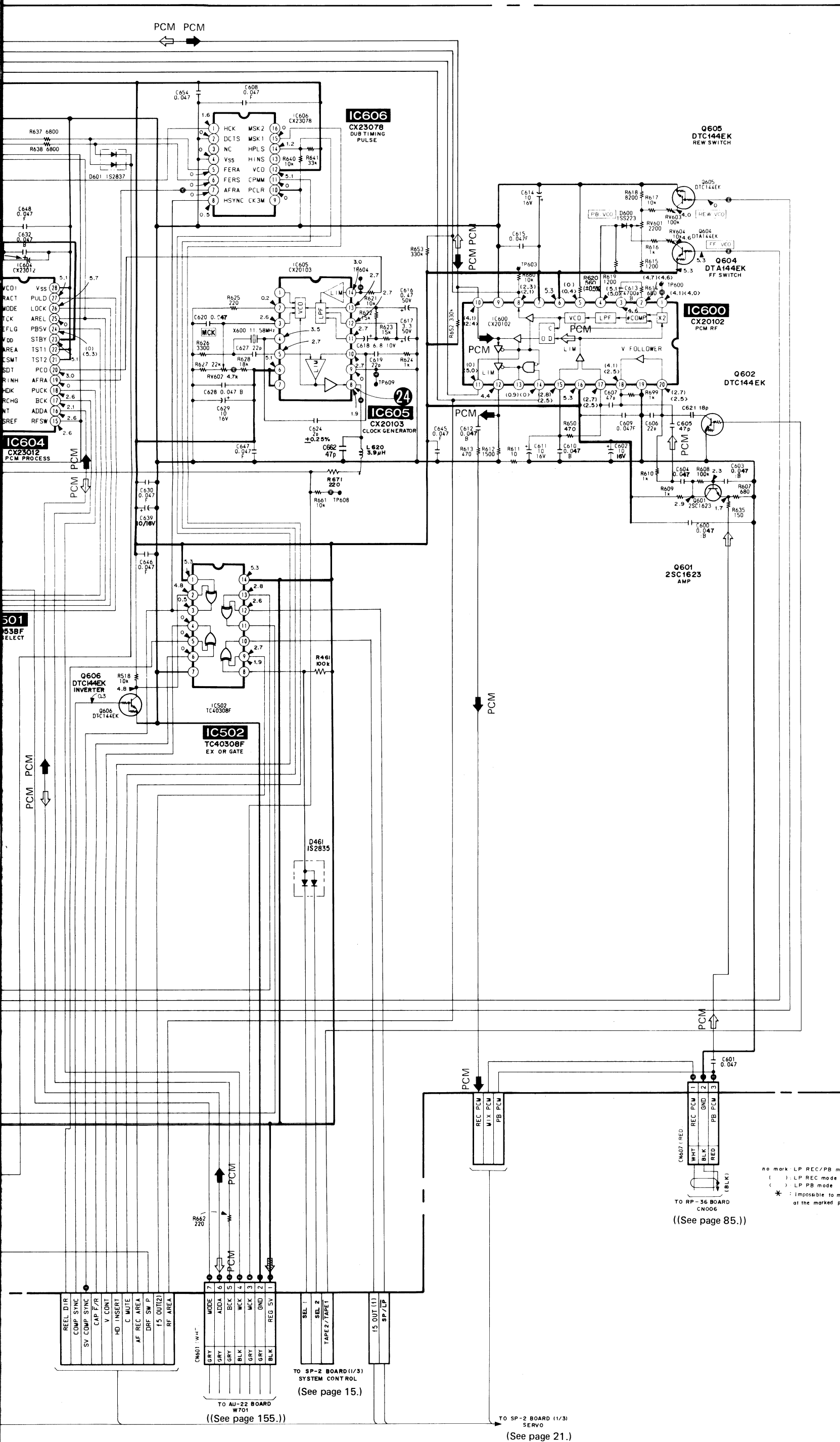


SP-2 BOARD(1/3) PCM



SP-2 BOARD(1/3) PCM





no mark: LP REC/PB mode
(): LP REC mode
(): LP PB mode
*: Impossible to measure the voltage at the marked points.

TO RP-36 BOARD (CNO06)
((See page 85.))

TO SP-2 BOARD (1/3) SYSTEM CONTROL
(See page 15.)

TO AU-22 BOARD (W701)
(See page 155.)

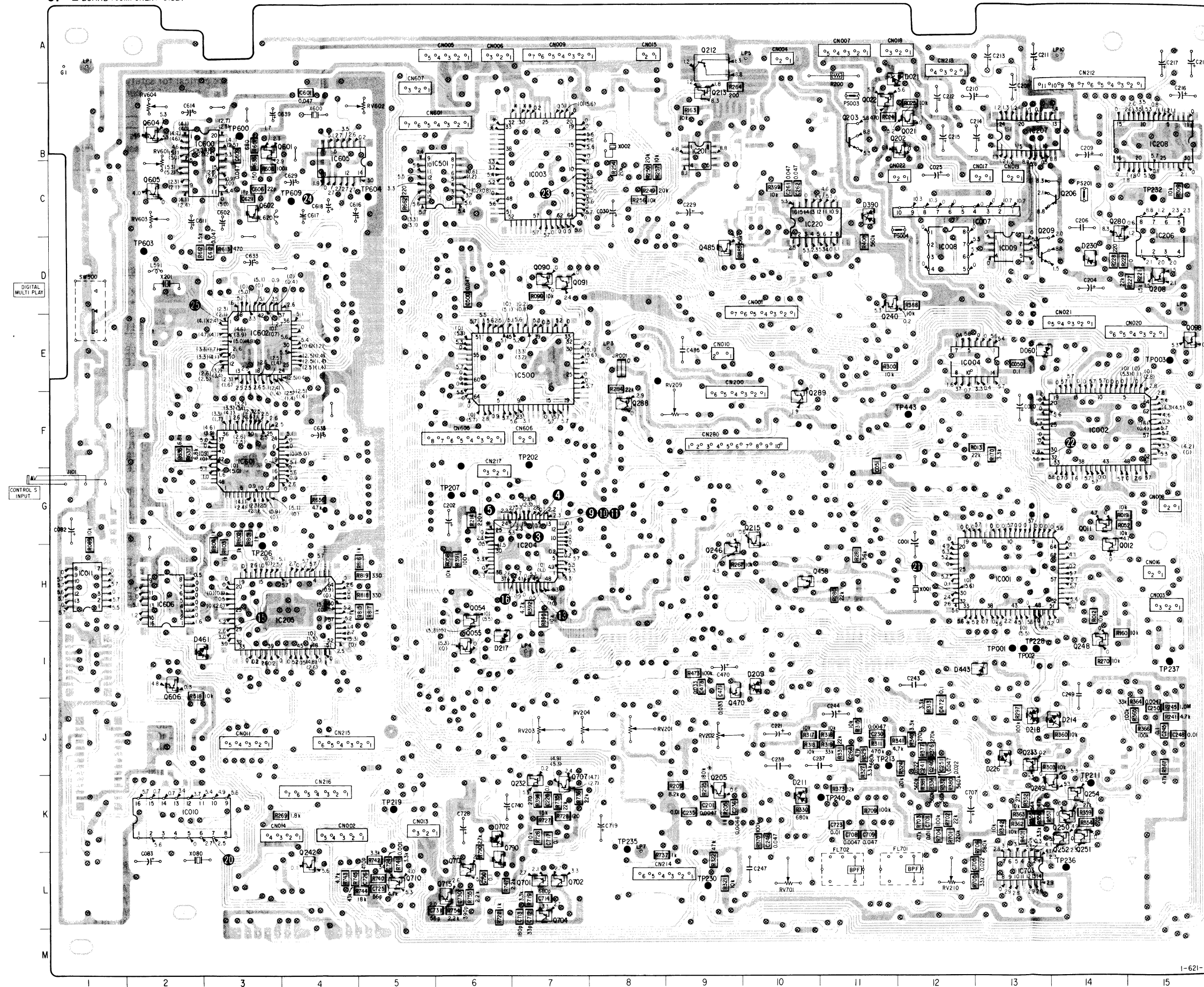
TO SP-2 BOARD (1/3) SERVO
(See page 21.)

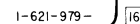
SP-2 (PCM AUDIO PROCESS) PRINTED WIRING BOARD

—Ref. No. SP-2 BOARD: 4,000 series—

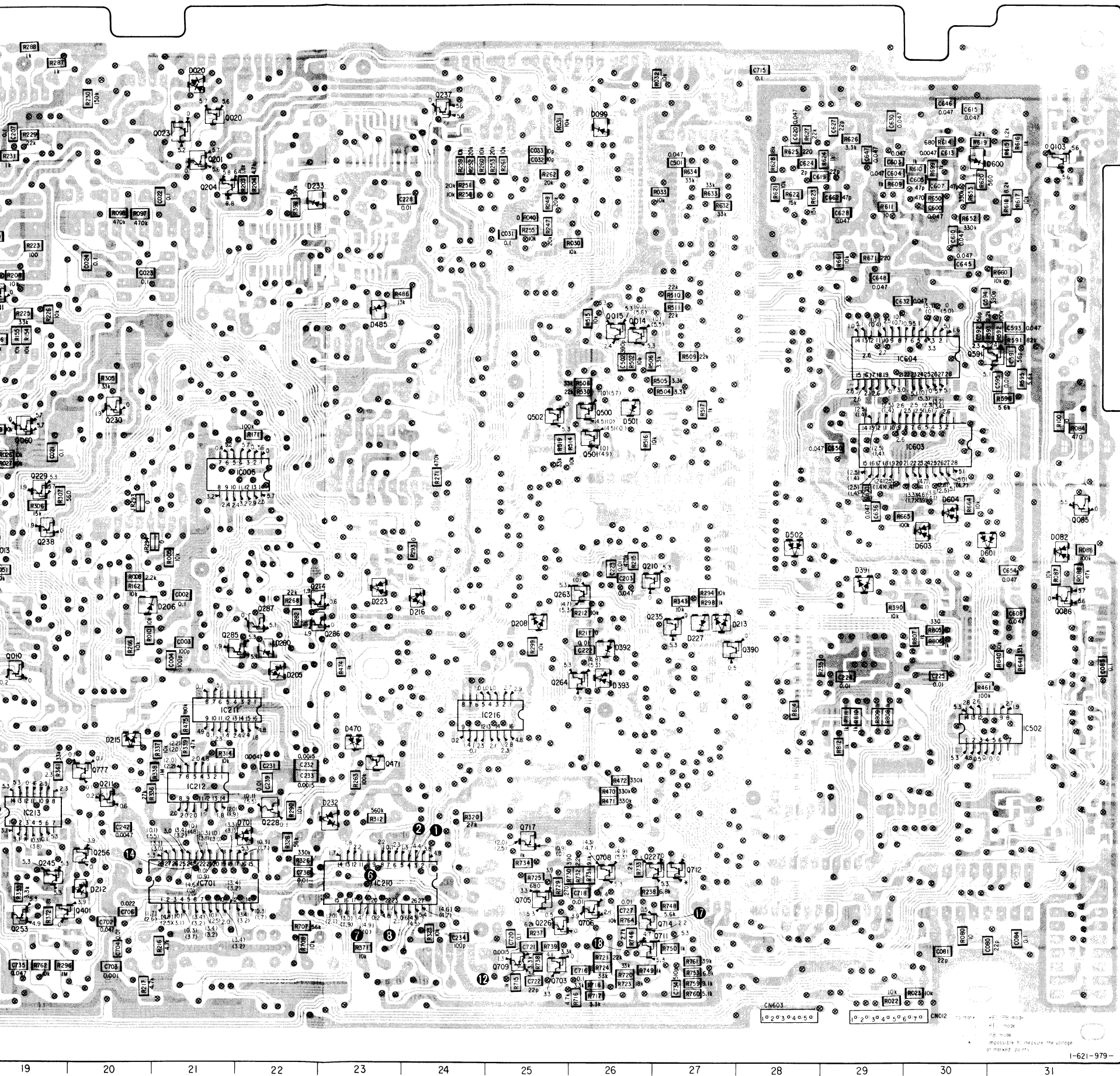
SP-2 BOARD (COMPONENT SIDE)

| | | | | | |
|-------|------|-------|------|-------|------|
| CN001 | D-10 | IC206 | D-15 | Q390 | H-28 |
| CN002 | K-4 | IC207 | B-13 | Q401 | K-20 |
| CN003 | H-15 | IC208 | B-15 | Q458 | H-10 |
| CN004 | A-10 | IC210 | K-23 | Q470 | I-9 |
| CN005 | A-6 | IC211 | I-21 | Q471 | J-23 |
| CN006 | A-6 | IC212 | J-21 | Q485 | D-9 |
| CN007 | A-11 | IC213 | J-10 | Q500 | E-26 |
| CN008 | G-15 | IC215 | I-18 | Q501 | F-26 |
| CN009 | A-7 | IC216 | I-25 | Q502 | E-25 |
| CN010 | E-9 | IC220 | B-10 | Q591 | E-30 |
| CN011 | J-3 | IC500 | E-7 | Q601 | B-4 |
| CN012 | M-30 | IC501 | C-6 | Q602 | C-3 |
| CN013 | K-5 | IC502 | I-31 | Q604 | B-2 |
| CN014 | K-3 | IC600 | B-3 | Q605 | C-2 |
| CN015 | A-8 | IC601 | F-3 | Q606 | I-2 |
| CN016 | H-15 | IC602 | E-3 | Q701 | L-7 |
| CN017 | C-13 | IC603 | F-30 | Q702 | L-7 |
| CN018 | A-11 | IC604 | E-29 | Q703 | L-25 |
| CN019 | C-13 | IC605 | B-4 | Q704 | L-7 |
| CN020 | E-15 | IC606 | H-2 | Q705 | K-25 |
| CN021 | E-14 | IC701 | K-21 | Q706 | K-26 |
| CN022 | C-11 | IC703 | L-13 | Q707 | K-7 |
| CN200 | E-9 | | | Q708 | K-26 |
| CN212 | A-14 | J101 | G-1 | Q709 | L-25 |
| CN213 | A-12 | | | Q710 | L-5 |
| CN214 | L-8 | Q010 | H-19 | Q711 | L-27 |
| CN215 | J-4 | Q012 | G-14 | Q712 | K-27 |
| CN216 | K-4 | Q013 | G-14 | Q713 | L-6 |
| CN217 | F-6 | Q014 | D-26 | Q714 | K-27 |
| CN280 | F-9 | Q015 | D-26 | Q715 | L-6 |
| CN601 | B-6 | Q020 | B-21 | Q717 | J-25 |
| CN603 | L-28 | Q021 | B-12 | Q777 | J-20 |
| CN605 | F-6 | Q022 | B-11 | Q790 | K-6 |
| CN606 | F-7 | Q023 | B-21 | | |
| CN607 | A-5 | Q054 | H-6 | RV201 | J-8 |
| | | Q055 | I-6 | RV202 | J-9 |
| D020 | A-21 | Q060 | F-19 | RV203 | J-7 |
| D021 | A-12 | Q080 | J-31 | RV204 | J-7 |
| D060 | E-13 | Q085 | G-31 | RV209 | E-9 |
| D082 | G-31 | Q086 | H-31 | RV210 | L-12 |
| D099 | B-26 | Q090 | D-7 | RV215 | K-8 |
| D203 | B-18 | Q091 | D-7 | RV216 | J-8 |
| D205 | H-22 | Q098 | E-15 | RV601 | B-2 |
| D206 | H-21 | Q099 | G-17 | RV602 | B-5 |
| D208 | H-25 | Q201 | B-21 | RV603 | C-2 |
| D209 | I-10 | Q202 | B-11 | RV604 | B-2 |
| D211 | K-10 | Q203 | B-11 | RV701 | L-10 |
| D212 | K-20 | Q204 | C-21 | | |
| D213 | H-27 | Q205 | K-9 | TP001 | I-13 |
| D214 | J-14 | Q206 | C-14 | TP002 | I-13 |
| D215 | I-20 | Q207 | C-18 | TP003 | E-15 |
| D216 | H-24 | Q208 | D-15 | TP202 | F-7 |
| D217 | I-6 | Q209 | C-13 | TP206 | H-3 |
| D218 | J-13 | Q210 | G-26 | TP207 | G-6 |
| D223 | H-23 | Q211 | J-20 | TP213 | J-11 |
| D226 | J-13 | Q212 | A-9 | TP219 | K-5 |
| D227 | H-27 | Q213 | B-9 | TP228 | I-13 |
| D230 | D-14 | Q214 | G-22 | TP236 | L-9 |
| D232 | J-23 | Q215 | G-10 | TP232 | C-15 |
| D233 | C-22 | Q226 | K-25 | TP235 | K-8 |
| D280 | H-22 | Q227 | K-26 | TP236 | L-14 |
| D390 | B-13 | Q228 | J-22 | TP237 | I-15 |
| D391 | G-29 | Q229 | F-19 | TP240 | K-11 |
| D392 | H-26 | Q230 | E-20 | TP443 | F-12 |
| D393 | H-26 | Q232 | K-7 | TP603 | D-2 |
| D443 | I-12 | Q233 | J-13 | TP604 | C-5 |
| D461 | I-2 | Q235 | H-27 | TP609 | C-4 |
| D470 | I-23 | Q237 | B-24 | | |
| D485 | D-23 | Q238 | G-19 | | |
| D501 | E-26 | Q240 | E-11 | | |
| D502 | G-28 | Q242 | K-4 | | |
| D600 | B-30 | Q245 | K-19 | | |
| D601 | G-30 | Q246 | G-9 | | |
| D603 | G-30 | Q248 | I-14 | | |
| D604 | F-30 | Q249 | K-13 | | |
| D701 | J-22 | Q250 | K-14 | | |
| D702 | K-6 | Q251 | K-14 | | |
| | | Q252 | K-14 | | |
| IC001 | H-13 | Q253 | K-19 | | |
| IC002 | F-14 | Q254 | K-14 | | |
| IC003 | C-7 | Q256 | K-20 | | |
| IC004 | E-12 | Q260 | B-17 | | |
| IC005 | F-22 | Q261 | B-18 | | |
| IC007 | C-13 | Q262 | B-18 | | |
| IC008 | D-12 | Q263 | G-25 | | |
| IC009 | D-13 | Q264 | H-25 | | |
| IC010 | K-2 | Q280 | C-14 | | |
| IC011 | H-1 | Q281 | D-19 | | |
| IC201 | B-9 | Q282 | D-18 | | |
| IC202 | I-17 | Q285 | H-21 | | |
| IC204 | G-7 | Q286 | H-23 | | |
| IC205 | H-4 | Q287 | H-22 | | |





CN603
 1020304050



Note:

- : indicates a lead wire mounted on the component side.
- : indicates a lead wire mounted on the conductor side.
- ⊗ : Through hole.
- : Pattern from the side which enables seeing.

- : Circled numbers refer to waveforms.
- : Digital transistor: transistor with resistors.

Refer to the schematic diagram for digital transistor.

SP-2 board: Q010, Q011, Q012, Q013, Q014, Q015, Q020, Q021, Q022, Q054, Q060, Q080, Q085, Q090, Q091, Q098, Q099, Q201, Q202, Q207, Q210, Q211, Q214, Q215, Q226, Q227, Q228, Q229, Q230, Q232, Q233, Q235, Q237, Q238, Q240, Q242, Q245, Q246, Q248, Q249, Q254, Q256, Q263, Q264, Q281, Q282, Q285, Q286, Q287, Q390, Q401, Q458, Q471, Q472, Q485, Q500, Q501, Q502, Q602, Q604, Q605, Q606, Q703, Q712, Q714, Q717, Q777, Q790.

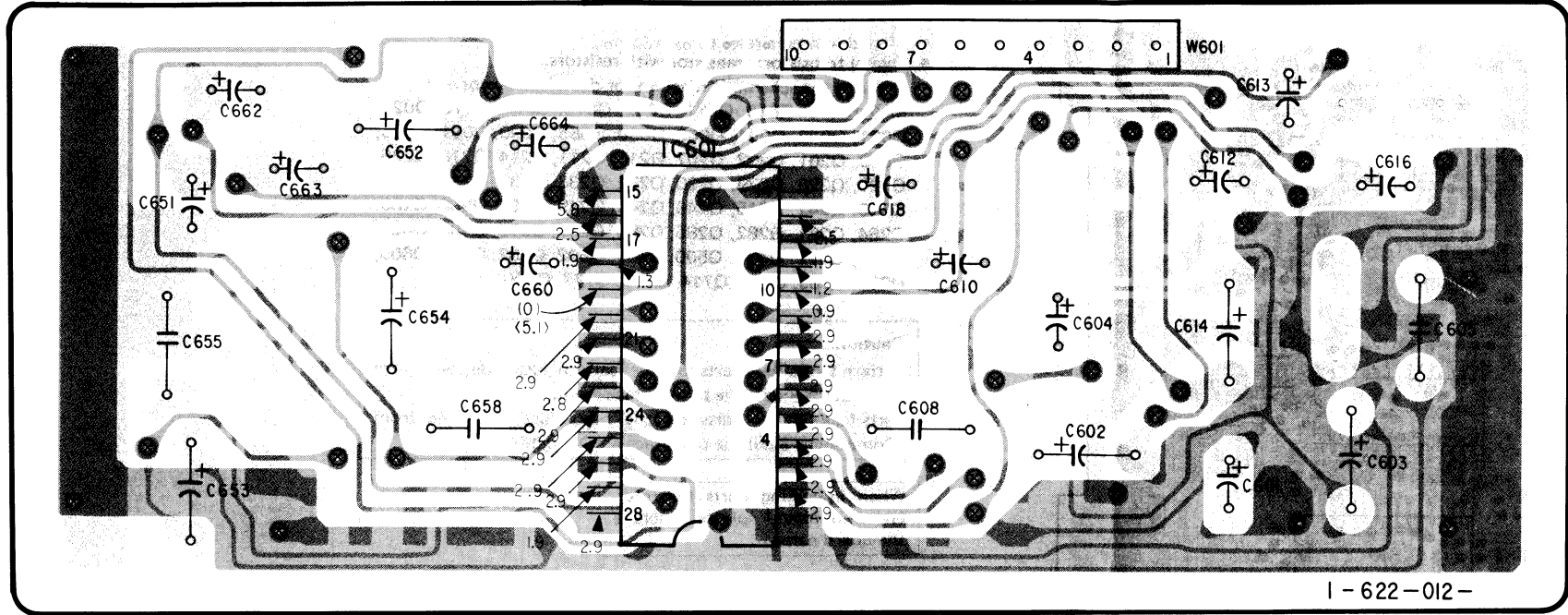
Caution:

Pattern face side: Parts on the pattern face side seen from (Conductor Side) the pattern face are indicated.

Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

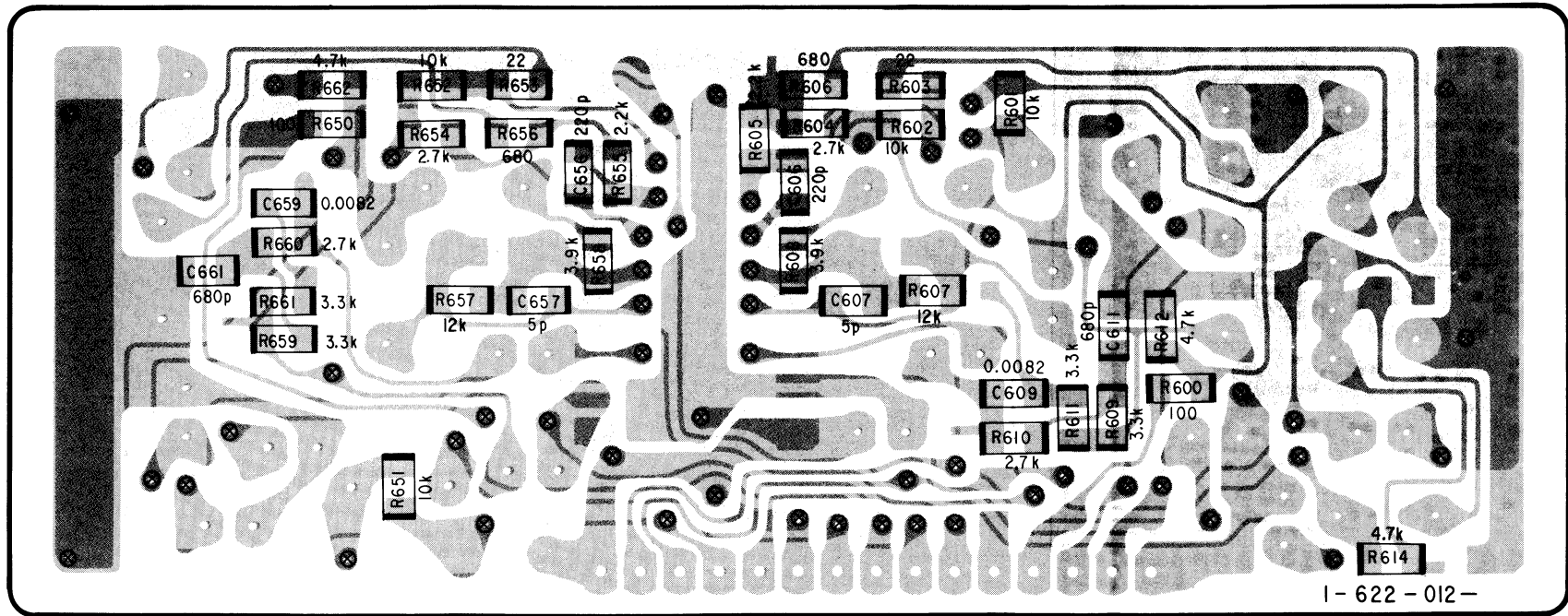
When indicating parts by reference number, please include the board name.

IC601
NR - 6 BOARD (COMPONENT SIDE)



no mark : LP REC/PB mode
() : LP REC mode
< > : LP PB mode

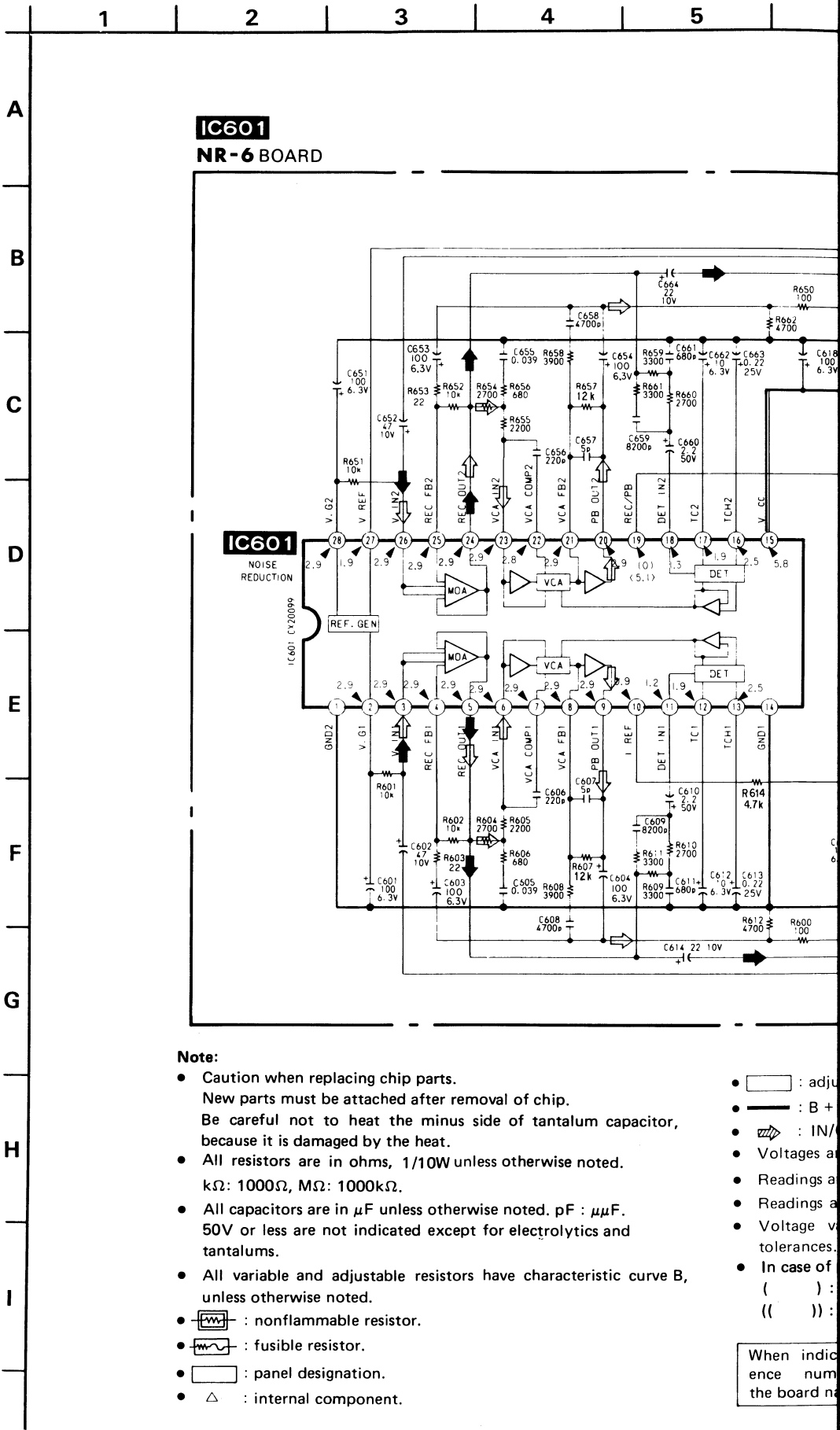
IC601
NR - 6 BOARD (CONDUCTOR SIDE)



- Note:
- : indicates a lead wire mounted on the component side.
 - : indicates a lead wire mounted on the conductor side.
 - ⊗ : Through hole.
 - : Pattern from the side which enables seeing.
 - : Pattern of the rear side.

Caution:
Pattern face side: Parts on the pattern face side seen from (Conductor Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from (Component Side) the parts face are indicated.

When indicating parts by reference number, please include the board name.



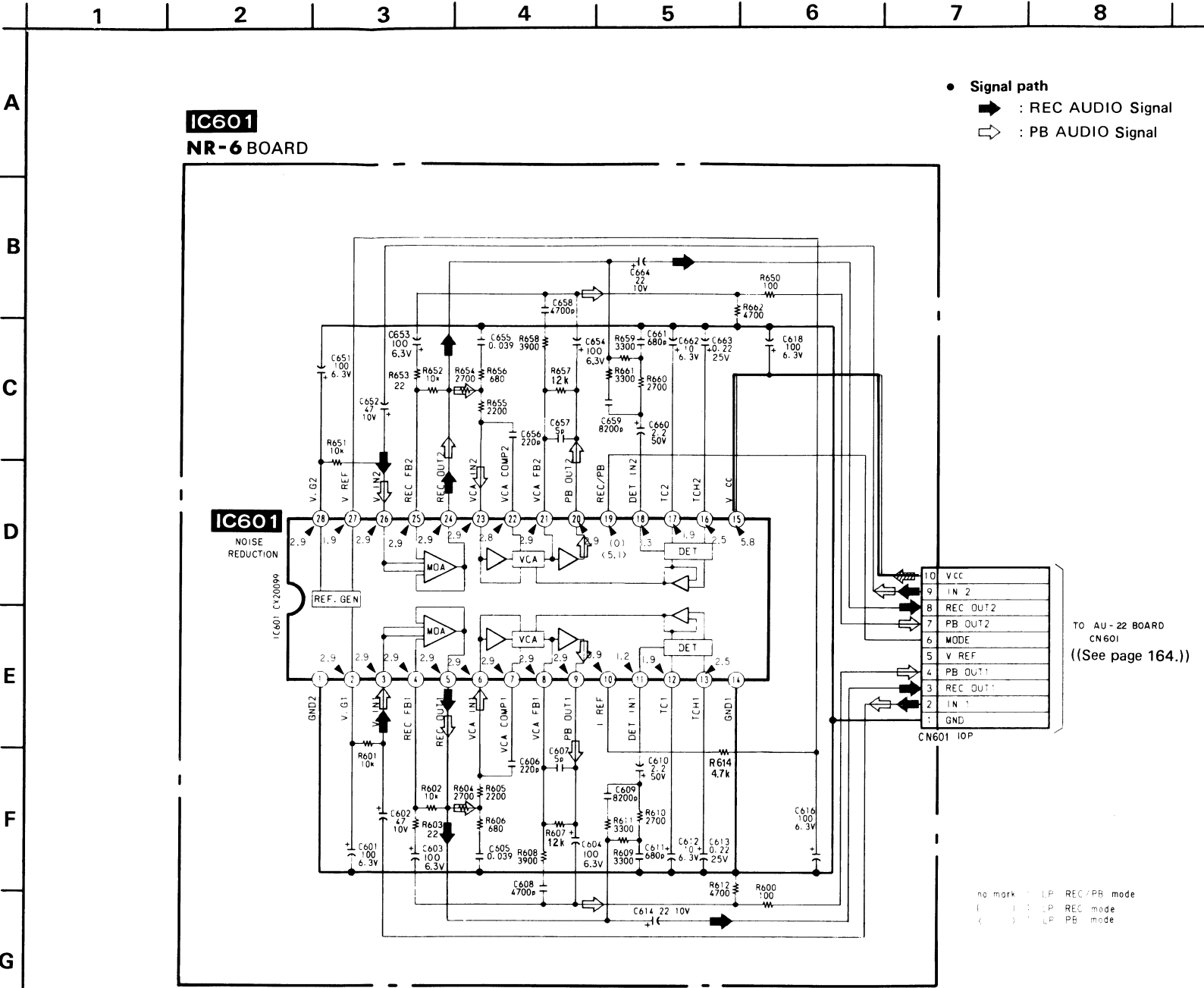
- Note:
- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
 - All resistors are in ohms, 1/10W unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
 - All capacitors are in μF unless otherwise noted. pF : μμF.
50V or less are not indicated except for electrolytics and tantalums.
 - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
 - : nonflammable resistor.
 - : fusible resistor.
 - : panel designation.
 - △ : internal component.

- : adjust
- : B +
- ⊗ : IN/
- ⊗ : Voltages a
- Readings a
- Readings a
- Voltage v
- tolerances.
- In case of
- () :
- (()) :

When indic
ence num
the board na

SECTION 3
EXPLODED VIEW

NR-6 (NOISE REDUCTION) SCHEMATIC DIAGRAM
—Ref. No. NR-6 BOARD: 8,000 series—

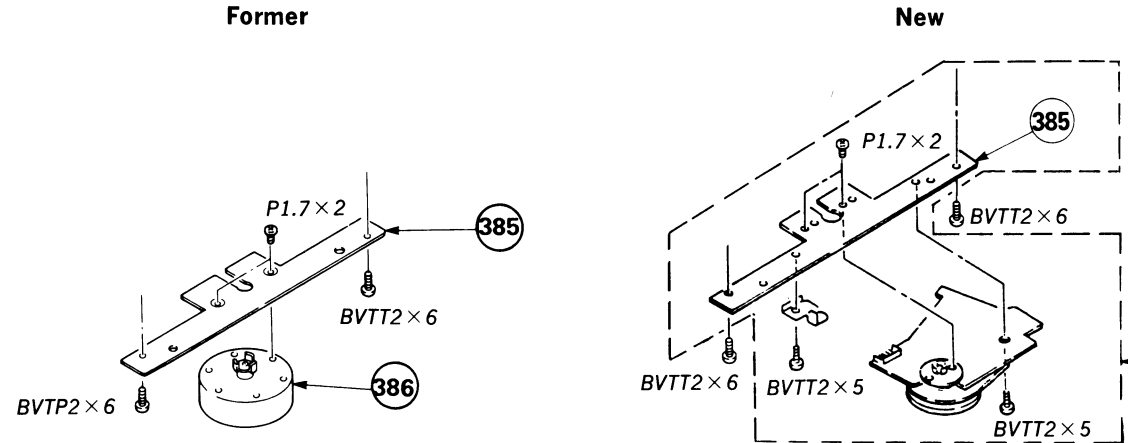


- Signal path
➡ : REC AUDIO Signal
➡ : PB AUDIO Signal

- NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
 - The construction parts of an assembled part are indicated with a collation number in the remark column.
 - Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

3-1. Reel motor change

There are two types of reel motors as illustrated below because the reel motor has been changed to brushless type.



| Former | | | | New | | |
|--------|----------------|----------------------|--------|----------------|--------------------------------------------------------|----|
| No. | Part No. | Description | Remark | Part No. | Description | Re |
| 385 | * 3-716-922-01 | BRACKET, REEL MOTOR | | * 3-716-922-01 | BRACKET, REEL MOTOR | |
| 386 | X-3711-961-1 | MOTOR SUB ASSY, REEL | | 8-835-282-02 | REEL MOTOR (U-11A) M901 (Including the RD-25 board) | |

- Note:
- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
 - All resistors are in ohms, 1/10W unless otherwise noted.
kΩ: 1000Ω, MΩ: 1000kΩ.
 - All capacitors are in μF unless otherwise noted. pF: μμF.
50V or less are not indicated except for electrolytics and tantalums.
 - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
 - [Symbol] : nonflammable resistor.
 - [Symbol] : fusible resistor.
 - [Symbol] : panel designation.
 - Δ : internal component.
 - [Symbol] : adjustment for repair.
 - [Symbol] : B + Line
 - [Symbol] : IN/OUT direction of (+, -) B line.
 - Voltages are dc between ground and measurement points.
 - Readings are taken with a color-bar signal input.
 - Readings are taken with a digital multimeter (DC10MΩ).
 - Voltage variations may be noted due to normal production tolerances.
 - In case of page reference, pay attention to the following.
() : Page of present SUPPLEMENT-1.
(()) : Page for SERVICE MANUAL unit.
- When indicating parts by reference number, please include the board name.

SECTION 3
EXPLODED VIEW

NR-6 SP-2

SECTION 4
ELECTRICAL PARTS LIST

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

NOTE:

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

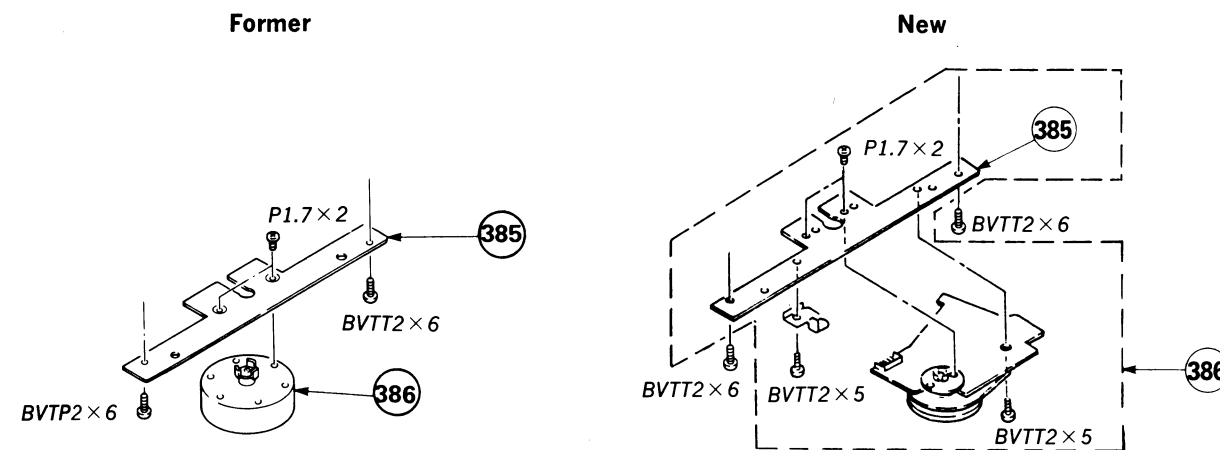
When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- RESISTORS**
All resistors are in ohms.
METAL: Metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- XX, -X, mean standardized parts, so they may have some difference from the original one.
- SEMICONDUCTORS**
In each case, U: μ , for example:
UA. . . : μ A. . . , UPA. . . : μ PA. . . ,
UPB. . . : μ PB. . . , UPC. . . : μ PC. . . ,
UPD. . . : μ PD. . .
- CAPACITORS**
MF: μ F, PF: μ F
- COILS**
MMH: mH, UH: μ H

3-1. Reel motor change

There are two types of reel motors as illustrated below because the reel motor has been changed to brushless type.



| Former | | | | New | | |
|--------|----------------|----------------------|--------|----------------|-------------------------------------------------------|--------|
| No. | Part No. | Description | Remark | Part No. | Description | Remark |
| 385 | * 3-716-922-01 | BRACKET, REEL MOTOR | | * 3-716-922-01 | BRACKET, REEL MOTOR | |
| 386 | X-3711-961-1 | MOTOR SUB ASSY, REEL | | 8-835-282-02 | REEL MOTOR (U-11A)M901 (Including the RD-25 board) | 385 |

| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|--------------------------------------------|---------------|-----------------------|------------|------------------------------------|--------------|-----------------------|---------|
| *A-7060-913-A NR-6 BOARD, COMPLETE (IC601) | | | | ***** | | | |
| CAPACITOR | | | | | | | |
| C601 | 1-123-661-00 | ELECT 100MF | 20% 6.3V | R610 | 1-216-059-00 | METAL GLAZE 2.7K 5% | 1/10W |
| C602 | 1-124-446-11 | ELECT 47MF | 20% 10V | R611 | 1-216-061-00 | METAL GLAZE 3.3K 5% | 1/10W |
| C603 | 1-123-661-00 | ELECT 100MF | 20% 6.3V | R612 | 1-216-065-00 | METAL GLAZE 4.7K 5% | 1/10W |
| C604 | 1-123-661-00 | ELECT 100MF | 20% 6.3V | R614 | 1-216-065-00 | METAL GLAZE 4.7K 5% | 1/10W |
| C605 | 1-130-490-11 | MYLAR 0.039MF | 5% 50V | R617 | 1-216-081-00 | METAL GLAZE 22K 5% | 1/10W |
| C606 | 1-163-125-00 | CERAMIC CHIP 220PF | 10% 50V | R650 | 1-216-025-00 | METAL GLAZE 100 5% | 1/10W |
| C607 | 1-163-088-00 | CERAMIC CHIP 5PF | 0.25PF 50V | R651 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| C608 | 1-130-479-00 | MYLAR 0.0047MF | 5% 50V | R652 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| C609 | 1-163-020-00 | CERAMIC CHIP 0.0082MF | 10% 50V | R653 | 1-216-009-00 | METAL GLAZE 22 5% | 1/10W |
| C610 | 1-124-257-00 | ELECT 2.2MF | 20% 50V | R654 | 1-216-059-00 | METAL GLAZE 2.7K 5% | 1/10W |
| C611 | 1-163-137-00 | CERAMIC CHIP 680PF | 10% 50V | R655 | 1-216-057-00 | METAL GLAZE 2.2K 5% | 1/10W |
| C612 | 1-127-489-00 | ELECT(SOLID) 10MF | 20% 6.3V | R656 | 1-216-045-00 | METAL GLAZE 680 5% | 1/10W |
| C613 | 1-127-502-00 | ELECT(SOLID) 0.22MF | 20% 25V | R657 | 1-216-075-00 | METAL GLAZE 12K 5% | 1/10W |
| C614 | 1-123-330-00 | ELECT 22MF | 20% 10V | R658 | 1-216-063-00 | METAL GLAZE 3.9K 5% | 1/10W |
| C616 | 1-123-661-00 | ELECT 100MF | 20% 6.3V | R659 | 1-216-061-00 | METAL GLAZE 3.3K 5% | 1/10W |
| C618 | 1-123-661-00 | ELECT 100MF | 20% 6.3V | R660 | 1-216-059-00 | METAL GLAZE 2.7K 5% | 1/10W |
| C651 | 1-123-661-00 | ELECT 100MF | 20% 6.3V | R661 | 1-216-061-00 | METAL GLAZE 3.3K 5% | 1/10W |
| C652 | 1-124-446-11 | ELECT 47MF | 20% 10V | R662 | 1-216-065-00 | METAL GLAZE 4.7K 5% | 1/10W |
| C653 | 1-123-661-00 | ELECT 100MF | 20% 6.3V | R667 | 1-216-081-00 | METAL GLAZE 22K 5% | 1/10W |
| C654 | 1-123-661-00 | ELECT 100MF | 20% 6.3V | ***** | | | |
| C655 | 1-130-490-11 | MYLAR 0.039MF | 5% 50V | *A-7060-844-B SP-2 BOARD, COMPLETE | | | |
| C656 | 1-163-125-00 | CERAMIC CHIP 220PF | 10% 50V | ***** | | | |
| C657 | 1-163-088-00 | CERAMIC CHIP 5PF | 0.25PF 50V | CAPACITOR | | | |
| C658 | 1-130-479-00 | MYLAR 0.0047MF | 5% 50V | C001 | 1-123-875-11 | ELECT 10MF | 20% 50V |
| C659 | 1-163-020-00 | CERAMIC CHIP 0.0082MF | 10% 50V | C002 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C660 | 1-124-257-00 | ELECT 2.2MF | 20% 50V | C003 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% 50V |
| C661 | 1-163-137-00 | CERAMIC CHIP 680PF | 10% 50V | C004 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% 50V |
| C662 | 1-127-489-00 | ELECT(SOLID) 10MF | 20% 6.3V | C020 | 1-123-875-11 | ELECT 10MF | 20% 50V |
| C663 | 1-127-502-00 | ELECT(SOLID) 0.22MF | 20% 25V | C021 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| C664 | 1-123-330-00 | ELECT 22MF | 20% 10V | C022 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| CONNECTOR | | | | C023 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| CN601 | *1-565-002-11 | PIN, CONNECTOR 15P | | C024 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| IC | | | | C025 | 1-123-875-11 | ELECT 10MF | 20% 50V |
| IC601 | 8-752-009-90 | IC CX20099 | | C030 | 1-123-875-11 | ELECT 10MF | 20% 50V |
| RESISTOR | | | | C031 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| R600 | 1-216-025-00 | METAL GLAZE 100 5% | 1/10W | C032 | 1-163-093-00 | CERAMIC CHIP 10PF | 5% 50V |
| R601 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W | C033 | 1-163-093-00 | CERAMIC CHIP 10PF | 5% 50V |
| R602 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W | C050 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| R603 | 1-216-009-00 | METAL GLAZE 22 5% | 1/10W | C051 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| R604 | 1-216-059-00 | METAL GLAZE 2.7K 5% | 1/10W | C080 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% 50V |
| R605 | 1-216-057-00 | METAL GLAZE 2.2K 5% | 1/10W | C081 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% 50V |
| R606 | 1-216-045-00 | METAL GLAZE 680 5% | 1/10W | C082 | 1-131-345-00 | TANTALUM 0.47MF | 10% 35V |
| R607 | 1-216-075-00 | METAL GLAZE 12K 5% | 1/10W | C083 | 1-124-261-00 | ELECT 10MF | 20% 50V |
| R608 | 1-216-063-00 | METAL GLAZE 3.9K 5% | 1/10W | C084 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| R609 | 1-216-061-00 | METAL GLAZE 3.3K 5% | 1/10W | C085 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| | | | | C201 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% 50V |
| | | | | C202 | 1-124-908-11 | ELECT 22MF | 20% 25V |
| | | | | C203 | 1-163-809-11 | CERAMIC CHIP 0.047MF | 10% 25V |
| | | | | C204 | 1-124-463-00 | ELECT 0.1MF | 20% 50V |
| | | | | C205 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V |
| | | | | C206 | 1-126-151-11 | ELECT 4.7MF | 20% 16V |



| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|------|--------------|-----------------------|---------|------|--------------|-----------------------|------------|
| C207 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V | C591 | 1-163-111-00 | CERAMIC CHIP 56PF | 5% 50V |
| C208 | 1-126-162-11 | ELECT 3.3MF | 20% 50V | C592 | 1-163-111-00 | CERAMIC CHIP 56PF | 5% 50V |
| C209 | 1-124-247-00 | ELECT 10MF | 20% 25V | C593 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C210 | 1-124-247-00 | ELECT 10MF | 20% 25V | C594 | 1-163-131-00 | CERAMIC CHIP 390PF | 5% 50V |
| C211 | 1-124-247-00 | ELECT 10MF | 20% 25V | C595 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V |
| C212 | 1-124-247-00 | ELECT 10MF | 20% 25V | C600 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C213 | 1-124-255-00 | ELECT 1MF | 20% 50V | C601 | 1-163-809-11 | CERAMIC CHIP 0.047MF | 10% 25V |
| C214 | 1-124-499-11 | ELECT 1MF | 20% 50V | C602 | 1-126-157-11 | ELECT 10MF | 20% 16V |
| C215 | 1-124-499-11 | ELECT 1MF | 20% 50V | C603 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C216 | 1-124-229-00 | ELECT 33MF | 20% 10V | C604 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C217 | 1-124-229-00 | ELECT 33MF | 20% 10V | C605 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% 50V |
| C218 | 1-124-229-00 | ELECT 33MF | 20% 10V | C606 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% 50V |
| C221 | 1-123-875-11 | ELECT 10MF | 20% 50V | C607 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% 50V |
| C222 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | C608 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C223 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | C609 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C224 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | C610 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C225 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | C611 | 1-126-157-11 | ELECT 10MF | 20% 16V |
| C226 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V | C612 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C228 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 10% 50V | C613 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% 50V |
| C229 | 1-123-875-11 | ELECT 10MF | 20% 50V | C614 | 1-126-157-11 | ELECT 10MF | 20% 16V |
| C230 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% 50V | C615 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C231 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% 50V | C616 | 1-124-465-00 | ELECT 0.47MF | 20% 50V |
| C232 | 1-163-209-00 | CERAMIC CHIP 0.0015MF | 5% 50V | C617 | 1-126-162-11 | ELECT 3.3MF | 20% 50V |
| C233 | 1-163-209-00 | CERAMIC CHIP 0.0015MF | 5% 50V | C618 | 1-124-239-00 | ELECT 6.8MF | 20% 10V |
| C234 | 1-163-117-00 | CERAMIC CHIP 100PF | 5% 50V | C619 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% 50V |
| C235 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | C620 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C236 | 1-163-019-00 | CERAMIC CHIP 0.0068MF | 10% 50V | C621 | 1-163-099-00 | CERAMIC CHIP 18PF | 5% 50V |
| C237 | 1-124-284-00 | ELECT 10MF | 20% 16V | C624 | 1-163-085-00 | CERAMIC CHIP 2PF | 0.25PF 50V |
| C238 | 1-124-499-11 | ELECT 1MF | 20% 50V | C627 | 1-163-101-00 | CERAMIC CHIP 22PF | 5% 50V |
| C239 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | C628 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C240 | 1-163-037-11 | CERAMIC CHIP 0.022MF | 10% 25V | C629 | 1-126-157-11 | ELECT 10MF | 20% 16V |
| C241 | 1-163-037-11 | CERAMIC CHIP 0.022MF | 10% 25V | C630 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C242 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% 50V | C632 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C243 | 1-124-277-11 | ELECT 4.7MF | 20% 35V | C633 | 1-126-157-11 | ELECT 10MF | 20% 16V |
| C244 | 1-123-875-11 | ELECT 10MF | 20% 50V | C635 | 1-126-157-11 | ELECT 10MF | 20% 16V |
| C245 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V | C636 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C246 | 1-163-809-11 | CERAMIC CHIP 0.047MF | 10% 25V | C639 | 1-126-157-11 | ELECT 10MF | 20% 16V |
| C247 | 1-124-767-00 | ELECT 2.2MF | 20% 50V | C645 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C248 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | C646 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C249 | 1-124-499-11 | ELECT 1MF | 20% 50V | C647 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C250 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% 50V | C648 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C251 | 1-163-809-11 | CERAMIC CHIP 0.047MF | 10% 25V | C650 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C261 | 1-163-809-11 | CERAMIC CHIP 0.047MF | 10% 25V | C654 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V |
| C262 | 1-163-809-11 | CERAMIC CHIP 0.047MF | 10% 25V | C662 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% 50V |
| C264 | 1-163-109-00 | CERAMIC CHIP 47PF | 5% 50V | C701 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 10% 50V |
| C470 | 1-124-250-00 | ELECT 0.15MF | 20% 50V | C702 | 1-163-809-11 | CERAMIC CHIP 0.047MF | 10% 25V |
| C471 | 1-163-989-11 | CERAMIC CHIP 0.033MF | 10% 25V | C703 | 1-163-141-00 | CERAMIC CHIP 0.001MF | 5% 50V |
| C472 | 1-163-077-00 | CERAMIC CHIP 0.1MF | 10% 25V | C704 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 10% 50V |
| C473 | 1-163-989-11 | CERAMIC CHIP 0.033MF | 10% 25V | C705 | 1-163-037-11 | CERAMIC CHIP 0.022MF | 10% 25V |
| C485 | 1-130-495-00 | MYLAR 0.1MF | 5% 50V | C706 | 1-163-037-11 | CERAMIC CHIP 0.022MF | 10% 25V |
| C500 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V | C707 | 1-124-908-11 | ELECT 22MF | 20% 25V |
| C501 | 1-163-035-00 | CERAMIC CHIP 0.047MF | 50V | C708 | 1-163-017-00 | CERAMIC CHIP 0.0047MF | 10% 50V |
| C502 | 1-163-131-00 | CERAMIC CHIP 390PF | 10% 50V | C709 | 1-163-809-11 | CERAMIC CHIP 0.047MF | 10% 25V |

When indicating parts by reference number, please include the board name.

SP-2

When indicating parts by reference number, please include the board name.

| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|------------------------|--------------|---------------------|------------|-------------------|--------------|-------------------------|--------|
| <u>FILTER</u> | | | | <u>COIL</u> | | | |
| FL701 | 1-235-829-11 | BPF | | L591 | 1-408-961-11 | INDUCTOR 1.8UH | |
| FL702 | 1-235-830-11 | BPF | | L620 | 1-408-965-21 | INDUCTOR 3.9UH | |
| <u>IC</u> | | | | <u>IC LINK</u> | | | |
| IC001 | 8-752-803-62 | IC CXP5048H-112Q | | PS003A | 1-532-685-00 | LINK, IC ICP-N20 (0.8A) | |
| IC002 | 8-752-803-63 | IC CXP5048H-113Q | | PS004A | 1-532-637-00 | LINK, IC ICP-N25 (1.0A) | |
| IC003 | 8-759-141-21 | IC UPD75104G-547-1B | | PS201A | 1-532-685-00 | LINK, IC ICP-N20 (0.8A) | |
| IC004 | 8-759-201-01 | IC TC4066BF | | <u>TRANSISTOR</u> | | | |
| IC005 | 8-759-201-61 | IC TC40H004F | | Q010 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| IC007 | 8-759-801-60 | IC LB1640N | | Q011 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| IC008 | 8-759-913-67 | IC MB3763P | | Q012 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| IC009 | 8-759-908-81 | IC MB3763PF | | Q013 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| IC010 | 8-759-920-94 | IC MS6411B-19RS | | Q014 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| IC011 | 8-759-200-68 | IC TC4011BF | | Q015 | 8-729-901-06 | TRANSISTOR DTA144EK | |
| IC201 | 8-759-803-47 | IC LA5005M | | Q020 | 8-729-901-05 | TRANSISTOR DTA124EK | |
| IC202 | 8-759-100-94 | IC UPC358G2 | | Q021 | 8-729-901-53 | TRANSISTOR DTC114EK | |
| IC204 | 8-759-929-55 | IC MB64H428PF | | Q022 | 8-729-901-05 | TRANSISTOR DTA124EK | |
| IC205 | 8-759-932-07 | IC MB674101PF | | Q023 | 8-729-199-92 | TRANSISTOR 2SD999 | |
| IC206 | 8-759-701-43 | IC NJM3414D | | Q054 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| IC207 | 8-759-202-45 | IC CX20114 | | Q055 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| IC208 | 8-759-802-79 | IC LB1616M | | Q060 | 8-729-901-06 | TRANSISTOR DTA144EK | |
| IC210 | 8-752-003-50 | IC CX20035 | | Q085 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| IC211 | 8-759-925-66 | IC BA6303F | | Q086 | 8-729-100-76 | TRANSISTOR 2SA812 | |
| IC212 | 8-759-701-39 | IC NJM3403AM | | Q090 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| IC213 | 8-759-201-01 | IC TC4066BF | | Q091 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| IC215 | 8-759-100-94 | IC UPC358G2 | | Q098 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| IC216 | 8-759-200-81 | IC TC4053BF | | Q099 | 8-729-901-06 | TRANSISTOR DTA144EK | |
| IC220 | 8-759-200-90 | IC TC4538BF | | Q201 | 8-729-901-04 | TRANSISTOR DTA114EK | |
| IC500 | 8-759-141-04 | IC UPD75106G-529-1B | | Q202 | 8-729-901-53 | TRANSISTOR DTC114EK | |
| IC501 | 8-759-200-89 | IC TC4053BF | | Q203 | 8-729-201-78 | TRANSISTOR 2SD1406 | |
| IC502 | 8-759-200-78 | IC TC4030BF | | Q204 | 8-729-100-67 | TRANSISTOR 2SC1623-L | |
| IC600 | 8-752-010-20 | IC CX20102 | | Q205 | 8-729-100-66 | TRANSISTOR 2SC1623 | |
| IC601 | 8-752-321-97 | IC CXD1066Q | | Q206 | 8-729-804-67 | TRANSISTOR 2SB1133-R | |
| IC602 | 8-759-911-18 | IC CX23011 | | Q207 | 8-729-901-06 | TRANSISTOR DTA144EK | |
| IC603 | 8-759-927-98 | IC MB8464-12LPF | | Q208 | 8-729-100-76 | TRANSISTOR 2SA812 | |
| IC604 | 8-759-911-19 | IC CX23012 | | Q209 | 8-729-201-78 | TRANSISTOR 2SD1406 | |
| IC605 | 8-752-010-30 | IC CX20103 | | Q210 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| IC606 | 8-759-929-17 | IC CXD1051M | | Q211 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| IC701 | 8-759-928-56 | IC CXA1042M | | Q212 | 8-729-105-29 | TRANSISTOR 2SA1385 | |
| IC703 | 8-759-193-24 | IC UPC324G2 | | Q213 | 8-729-100-67 | TRANSISTOR 2SC1623 | |
| <u>JACK</u> | | | | Q214 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| J101 | 1-507-678-00 | JACK | | Q215 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| <u>JUMPER RESISTOR</u> | | | | Q226 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| JR001 | 1-216-296-00 | METAL GLAZE | 0 5% 1/8W | Q227 | 8-729-901-06 | TRANSISTOR DTA144EK | |
| JR293 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | Q228 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| JR294 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | Q229 | 8-729-901-06 | TRANSISTOR DTA144EK | |
| | | | | Q230 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| | | | | Q232 | 8-729-901-06 | TRANSISTOR DTA144EK | |
| | | | | Q233 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| | | | | Q235 | 8-729-901-01 | TRANSISTOR DTC144EK | |

Note: The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|------|--------------|-----------------------|--------|----------|--------------|---------------------|--------|
| Q237 | 8-729-901-06 | TRANSISTOR DTA144EK | | Q714 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q238 | 8-729-901-01 | TRANSISTOR DTC144EK | | Q715 | 8-729-100-76 | TRANSISTOR 2SA812 | |
| Q240 | 8-729-901-01 | TRANSISTOR DTC144EK | | Q717 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q242 | 8-729-901-01 | TRANSISTOR DTC144EK | | Q777 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q245 | 8-729-901-06 | TRANSISTOR DTA144EK | | Q790 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| Q246 | 8-729-901-01 | TRANSISTOR DTC144EK | | RESISTOR | | | |
| Q248 | 8-729-901-01 | TRANSISTOR DTC144EK | | R001 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q249 | 8-729-901-06 | TRANSISTOR DTA144EK | | R002 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q250 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R003 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q251 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R004 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q252 | 8-729-100-76 | TRANSISTOR 2SA812 | | R005 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q253 | 8-729-100-76 | TRANSISTOR 2SA812 | | R008 | 1-216-057-00 | METAL GLAZE 2.2K 5% | 1/10W |
| Q254 | 8-729-901-01 | TRANSISTOR DTC144EK | | R010 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q256 | 8-729-901-01 | TRANSISTOR DTC144EK | | R012 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q260 | 8-729-199-92 | TRANSISTOR 2SD999 | | R013 | 1-216-081-00 | METAL GLAZE 22K 5% | 1/10W |
| Q261 | 8-729-199-92 | TRANSISTOR 2SD999 | | R014 | 1-216-061-00 | METAL GLAZE 3.3K 5% | 1/10W |
| Q262 | 8-729-199-92 | TRANSISTOR 2SD999 | | R015 | 1-216-081-00 | METAL GLAZE 22K 5% | 1/10W |
| Q263 | 8-729-901-06 | TRANSISTOR DTA144EK | | R018 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q264 | 8-729-901-04 | TRANSISTOR DTA114EK | | R019 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q280 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R021 | 1-216-295-00 | METAL GLAZE 0 5% | 1/10W |
| Q281 | 8-729-901-01 | TRANSISTOR DTC144EK | | R022 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q282 | 8-729-901-01 | TRANSISTOR DTC144EK | | R023 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q285 | 8-729-901-06 | TRANSISTOR DTA144EK | | R024 | 1-216-041-00 | METAL GLAZE 470 5% | 1/10W |
| Q286 | 8-729-901-01 | TRANSISTOR DTC144EK | | R025 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q287 | 8-729-901-01 | TRANSISTOR DTC144EK | | R026 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q390 | 8-729-901-01 | TRANSISTOR DTC144EK | | R027 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q401 | 8-729-901-01 | TRANSISTOR DTC144EK | | R028 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q458 | 8-729-901-04 | TRANSISTOR DTA114EK | | R029 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q470 | 8-729-100-76 | TRANSISTOR 2SA812 | | R030 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q471 | 8-729-901-01 | TRANSISTOR DTC144EK | | R031 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q485 | 8-729-901-06 | TRANSISTOR DTA144EK | | R032 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q500 | 8-729-901-01 | TRANSISTOR DTC144EK | | R033 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q501 | 8-729-901-01 | TRANSISTOR DTC144EK | | R040 | 1-216-295-00 | METAL GLAZE 0 5% | 1/10W |
| Q502 | 8-729-901-01 | TRANSISTOR DTC144EK | | R051 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q591 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R052 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q601 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R058 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q602 | 8-729-901-01 | TRANSISTOR DTC144EK | | R080 | 1-216-001-00 | METAL GLAZE 10 5% | 1/10W |
| Q604 | 8-729-901-06 | TRANSISTOR DTA144EK | | R086 | 1-216-097-00 | METAL GLAZE 100K 5% | 1/10W |
| Q605 | 8-729-901-01 | TRANSISTOR DTC144EK | | R087 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q606 | 8-729-901-01 | TRANSISTOR DTC144EK | | R088 | 1-216-089-00 | METAL GLAZE 47K 5% | 1/10W |
| Q701 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R089 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q702 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R090 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q703 | 8-729-901-01 | TRANSISTOR DTC144EK | | R097 | 1-216-113-00 | METAL GLAZE 470K 5% | 1/10W |
| Q704 | 8-729-100-76 | TRANSISTOR 2SA812 | | R098 | 1-216-113-00 | METAL GLAZE 470K 5% | 1/10W |
| Q705 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R099 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q706 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R100 | 1-216-001-00 | METAL GLAZE 10 5% | 1/10W |
| Q707 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R151 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q708 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R152 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q709 | 8-729-100-76 | TRANSISTOR 2SA812 | | R153 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q710 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R154 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q711 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | R155 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q712 | 8-729-901-01 | TRANSISTOR DTC144EK | | R156 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| Q713 | 8-729-100-67 | TRANSISTOR 2SC1623-L7 | | | | | |

When indicating parts by reference number, please include the board name.

| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|------|--------------|-------------|------------------|------|--------------|-------------|-----------------|
| R157 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R256 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R158 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R257 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R160 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R258 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R162 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R259 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R163 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R260 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R170 | 1-216-061-00 | METAL GLAZE | 3.3K 5% 1/10W | R261 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R171 | 1-216-097-00 | METAL GLAZE | 100K 5% 1/10W | R262 | 1-216-080-00 | METAL GLAZE | 20K 5% 1/10W |
| R200 | 1-249-448-11 | CARBON | 1.2 5% 1/4W | R263 | 1-216-097-00 | METAL GLAZE | 100K 5% 1/10W |
| R202 | 1-216-097-00 | METAL GLAZE | 100K 5% 1/10W | R264 | 1-216-033-00 | METAL GLAZE | 220 5% 1/10W |
| R203 | 1-216-055-00 | METAL GLAZE | 1.8K 5% 1/10W | R266 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R204 | 1-216-065-00 | METAL GLAZE | 4.7K 5% 1/10W | R267 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R205 | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W | R268 | 1-216-081-00 | METAL GLAZE | 22K 5% 1/10W |
| R206 | 1-216-065-00 | METAL GLAZE | 4.7K 5% 1/10W | R269 | 1-216-055-00 | METAL GLAZE | 1.8K 5% 1/10W |
| R207 | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W | R270 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R208 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R271 | 1-216-113-00 | METAL GLAZE | 470K 5% 1/10W |
| R209 | 1-216-071-00 | METAL GLAZE | 8.2K 5% 1/10W | R272 | 1-216-041-00 | METAL GLAZE | 470 5% 1/10W |
| R211 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | R280 | 1-216-081-00 | METAL GLAZE | 22K 5% 1/10W |
| R212 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R281 | 1-216-693-11 | METAL CHIP | 56K 0.50% 1/10W |
| R214 | 1-216-105-00 | METAL GLAZE | 220K 5% 1/10W | R282 | 1-216-681-11 | METAL CHIP | 18K 0.50% 1/10W |
| R215 | 1-216-113-00 | METAL GLAZE | 470K 5% 1/10W | R287 | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W |
| R216 | 1-216-667-11 | METAL CHIP | 4.7K 0.50% 1/10W | R288 | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W |
| R217 | 1-216-667-11 | METAL CHIP | 4.7K 0.50% 1/10W | R290 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R218 | 1-216-059-00 | METAL GLAZE | 2.7K 5% 1/10W | R293 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W |
| R219 | 1-216-113-00 | METAL GLAZE | 470K 5% 1/10W | R294 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R220 | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W | R295 | 1-216-103-00 | METAL GLAZE | 180K 5% 1/10W |
| R221 | 1-216-053-00 | METAL GLAZE | 1.5K 5% 1/10W | R296 | 1-216-121-00 | METAL GLAZE | 1M 5% 1/10W |
| R222 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | R297 | 1-216-097-00 | METAL GLAZE | 100K 5% 1/10W |
| R223 | 1-216-025-00 | METAL GLAZE | 100 5% 1/10W | R298 | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W |
| R224 | 1-216-081-00 | METAL GLAZE | 22K 5% 1/10W | R299 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R225 | 1-216-085-00 | METAL GLAZE | 33K 5% 1/10W | R300 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R226 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R303 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R227 | 1-216-081-00 | METAL GLAZE | 22K 5% 1/10W | R305 | 1-216-085-00 | METAL GLAZE | 33K 5% 1/10W |
| R228 | 1-216-033-00 | METAL GLAZE | 220 5% 1/10W | R306 | 1-216-077-00 | METAL GLAZE | 15K 5% 1/10W |
| R229 | 1-216-081-00 | METAL GLAZE | 22K 5% 1/10W | R307 | 1-216-043-00 | METAL GLAZE | 560 5% 1/10W |
| R230 | 1-216-101-00 | METAL GLAZE | 150K 5% 1/10W | R308 | 1-216-043-00 | METAL GLAZE | 560 5% 1/10W |
| R231 | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W | R309 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R232 | 1-216-304-11 | METAL GLAZE | 3.3 5% 1/10W | R310 | 1-216-043-00 | METAL GLAZE | 560 5% 1/10W |
| R233 | 1-216-304-11 | METAL GLAZE | 3.3 5% 1/10W | R311 | 1-216-113-00 | METAL GLAZE | 470K 5% 1/10W |
| R234 | 1-216-304-11 | METAL GLAZE | 3.3 5% 1/10W | R312 | 1-216-115-00 | METAL GLAZE | 560K 5% 1/10W |
| R235 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W | R313 | 1-216-061-00 | METAL GLAZE | 3.3K 5% 1/10W |
| R237 | 1-216-068-00 | METAL GLAZE | 6.2K 5% 1/10W | R314 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R238 | 1-216-069-00 | METAL GLAZE | 6.8K 5% 1/10W | R315 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R241 | 1-216-667-11 | METAL CHIP | 4.7K 0.50% 1/10W | R316 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R245 | 1-216-121-00 | METAL GLAZE | 1M 5% 1/10W | R317 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R247 | 1-216-080-00 | METAL GLAZE | 20K 5% 1/10W | R318 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R248 | 1-216-080-00 | METAL GLAZE | 20K 5% 1/10W | R319 | 1-216-085-00 | METAL GLAZE | 33K 5% 1/10W |
| R249 | 1-216-080-00 | METAL GLAZE | 20K 5% 1/10W | R320 | 1-216-685-11 | METAL CHIP | 27K 0.50% 1/10W |
| R250 | 1-216-080-00 | METAL GLAZE | 20K 5% 1/10W | R321 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R251 | 1-216-080-00 | METAL GLAZE | 20K 5% 1/10W | R322 | 1-216-089-00 | METAL GLAZE | 47K 5% 1/10W |
| R252 | 1-216-080-00 | METAL GLAZE | 20K 5% 1/10W | R323 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R253 | 1-216-080-00 | METAL GLAZE | 20K 5% 1/10W | R324 | 1-216-099-00 | METAL GLAZE | 120K 5% 1/10W |
| R254 | 1-216-080-00 | METAL GLAZE | 20K 5% 1/10W | R326 | 1-216-109-00 | METAL GLAZE | 330K 5% 1/10W |
| R255 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R327 | 1-216-061-00 | METAL GLAZE | 3.3K 5% 1/10W |

When indicating parts by reference number, please include the board name.

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| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|------|--------------|-------------|------------------|------|--------------|-------------|-----------------|
| R328 | 1-216-091-00 | METAL GLAZE | 56K 5% 1/10W | R408 | 1-216-115-00 | METAL GLAZE | 560K 5% 1/10W |
| R329 | 1-216-117-00 | METAL GLAZE | 680K 5% 1/10W | R461 | 1-216-097-00 | METAL GLAZE | 100K 5% 1/10W |
| R330 | 1-216-117-00 | METAL GLAZE | 680K 5% 1/10W | R470 | 1-216-109-00 | METAL GLAZE | 330K 5% 1/10W |
| R331 | 1-216-081-00 | METAL GLAZE | 22K 5% 1/10W | R471 | 1-216-109-00 | METAL GLAZE | 330K 5% 1/10W |
| R332 | 1-216-115-00 | METAL GLAZE | 560K 5% 1/10W | R472 | 1-216-109-00 | METAL GLAZE | 330K 5% 1/10W |
| R333 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R473 | 1-216-097-00 | METAL GLAZE | 100K 5% 1/10W |
| R334 | 1-216-115-00 | METAL GLAZE | 560K 5% 1/10W | R474 | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W |
| R336 | 1-216-083-00 | METAL GLAZE | 27K 5% 1/10W | R475 | 1-216-103-00 | METAL GLAZE | 180K 5% 1/10W |
| R337 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R485 | 1-216-091-00 | METAL GLAZE | 56K 5% 1/10W |
| R338 | 1-216-121-00 | METAL GLAZE | 1M 5% 1/10W | R486 | 1-216-076-00 | METAL GLAZE | 13K 5% 1/10W |
| R339 | 1-216-089-00 | METAL GLAZE | 47K 5% 1/10W | R502 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R340 | 1-216-663-11 | METAL CHIP | 3.3K 0.50% 1/10W | R504 | 1-216-061-00 | METAL GLAZE | 3.3K 5% 1/10W |
| R341 | 1-216-667-11 | METAL CHIP | 4.7K 0.50% 1/10W | R505 | 1-216-061-00 | METAL GLAZE | 3.3K 5% 1/10W |
| R342 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R506 | 1-216-061-00 | METAL GLAZE | 3.3K 5% 1/10W |
| R343 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R508 | 1-216-085-00 | METAL GLAZE | 33K 5% 1/10W |
| R344 | 1-216-043-00 | METAL GLAZE | 560 5% 1/10W | R509 | 1-216-081-00 | METAL GLAZE | 22K 5% 1/10W |
| R351 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R510 | 1-216-081-00 | METAL GLAZE | 22K 5% 1/10W |
| R352 | 1-216-685-11 | METAL CHIP | 27K 0.50% 1/10W | R511 | 1-216-081-00 | METAL GLAZE | 22K 5% 1/10W |
| R353 | 1-216-663-11 | METAL CHIP | 3.3K 0.50% 1/10W | R514 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R354 | 1-216-689-11 | METAL CHIP | 39K 0.50% 1/10W | R515 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R356 | 1-216-693-11 | METAL CHIP | 56K 0.50% 1/10W | R516 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R357 | 1-216-691-11 | METAL CHIP | 47K 0.50% 1/10W | R517 | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W |
| R358 | 1-216-663-11 | METAL CHIP | 3.3K 0.50% 1/10W | R518 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R359 | 1-216-685-11 | METAL CHIP | 27K 0.50% 1/10W | R519 | 1-216-085-00 | METAL GLAZE | 33K 5% 1/10W |
| R360 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R530 | 1-216-081-00 | METAL GLAZE | 22K 5% 1/10W |
| R361 | 1-216-085-00 | METAL GLAZE | 33K 5% 1/10W | R591 | 1-216-095-00 | METAL GLAZE | 82K 5% 1/10W |
| R362 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R592 | 1-216-097-00 | METAL GLAZE | 100K 5% 1/10W |
| R363 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R593 | 1-216-057-00 | METAL GLAZE | 2.2K 5% 1/10W |
| R364 | 1-216-085-00 | METAL GLAZE | 33K 5% 1/10W | R595 | 1-216-067-00 | METAL GLAZE | 5.6K 5% 1/10W |
| R365 | 1-216-097-00 | METAL GLAZE | 100K 5% 1/10W | R596 | 1-216-067-00 | METAL GLAZE | 5.6K 5% 1/10W |
| R366 | 1-216-097-00 | METAL GLAZE | 100K 5% 1/10W | R607 | 1-216-045-00 | METAL GLAZE | 680 5% 1/10W |
| R367 | 1-216-089-00 | METAL GLAZE | 47K 5% 1/10W | R608 | 1-216-097-00 | METAL GLAZE | 100K 5% 1/10W |
| R370 | 1-216-097-00 | METAL GLAZE | 100K 5% 1/10W | R609 | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W |
| R371 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R610 | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W |
| R372 | 1-216-681-11 | METAL CHIP | 18K 0.50% 1/10W | R611 | 1-216-001-00 | METAL GLAZE | 10 5% 1/10W |
| R373 | 1-216-075-00 | METAL GLAZE | 12K 5% 1/10W | R612 | 1-216-053-00 | METAL GLAZE | 1.5K 5% 1/10W |
| R376 | 1-216-107-00 | METAL GLAZE | 270K 5% 1/10W | R613 | 1-216-041-00 | METAL GLAZE | 470 5% 1/10W |
| R377 | 1-216-107-00 | METAL GLAZE | 270K 5% 1/10W | R614 | 1-216-045-00 | METAL GLAZE | 680 5% 1/10W |
| R380 | 1-216-115-00 | METAL GLAZE | 560K 5% 1/10W | R615 | 1-216-051-00 | METAL GLAZE | 1.2K 5% 1/10W |
| R381 | 1-216-115-00 | METAL GLAZE | 560K 5% 1/10W | R616 | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W |
| R383 | 1-216-683-11 | METAL CHIP | 22K 0.50% 1/10W | R617 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R384 | 1-216-667-11 | METAL CHIP | 4.7K 0.50% 1/10W | R618 | 1-216-071-00 | METAL GLAZE | 8.2K 5% 1/10W |
| R385 | 1-216-683-11 | METAL CHIP | 22K 0.50% 1/10W | R619 | 1-216-051-00 | METAL GLAZE | 1.2K 5% 1/10W |
| R386 | 1-216-667-11 | METAL CHIP | 4.7K 0.50% 1/10W | R620 | 1-216-645-11 | METAL CHIP | 560 0.50% 1/10W |
| R388 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R621 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W |
| R390 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R622 | 1-216-077-00 | METAL GLAZE | 15K 5% 1/10W |
| R391 | 1-216-097-00 | METAL GLAZE | 100K 5% 1/10W | R623 | 1-216-077-00 | METAL GLAZE | 15K 5% 1/10W |
| R392 | 1-216-065-00 | METAL GLAZE | 4.7K 5% 1/10W | R624 | 1-216-049-00 | METAL GLAZE | 1K 5% 1/10W |
| R394 | 1-216-035-00 | METAL GLAZE | 270 5% 1/10W | R625 | 1-216-033-00 | METAL GLAZE | 220 5% 1/10W |
| R395 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R626 | 1-216-061-00 | METAL GLAZE | 3.3K 5% 1/10W |
| R398 | 1-216-111-00 | METAL GLAZE | 390K 5% 1/10W | R627 | 1-216-081-00 | METAL GLAZE | 22K 5% 1/10W |
| R399 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R628 | 1-216-079-00 | METAL GLAZE | 18K 5% 1/10W |
| R401 | 1-216-073-00 | METAL GLAZE | 10K 5% 1/10W | R630 | 1-216-295-00 | METAL GLAZE | 0 5% 1/10W |

When indicating parts by reference number, please include the board name.

| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|------|--------------|---------------------|--------|-------------------|--------------|----------------------------|--------|
| R632 | 1-216-085-00 | METAL GLAZE 33K 5% | 1/10W | R740 | 1-216-065-00 | METAL GLAZE 4.7K 5% | 1/10W |
| R633 | 1-216-085-00 | METAL GLAZE 33K 5% | 1/10W | R741 | 1-216-061-00 | METAL GLAZE 3.3K 5% | 1/10W |
| R634 | 1-216-085-00 | METAL GLAZE 33K 5% | 1/10W | R742 | 1-216-061-00 | METAL GLAZE 3.3K 5% | 1/10W |
| R635 | 1-216-029-00 | METAL GLAZE 150 5% | 1/10W | R743 | 1-216-065-00 | METAL GLAZE 4.7K 5% | 1/10W |
| R636 | 1-216-065-00 | METAL GLAZE 4.7K 5% | 1/10W | R744 | 1-216-079-00 | METAL GLAZE 18K 5% | 1/10W |
| R637 | 1-216-069-00 | METAL GLAZE 6.8K 5% | 1/10W | R745 | 1-216-088-00 | METAL GLAZE 43K 5% | 1/10W |
| R638 | 1-216-069-00 | METAL GLAZE 6.8K 5% | 1/10W | R746 | 1-216-059-00 | METAL GLAZE 2.7K 5% | 1/10W |
| R640 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W | R747 | 1-216-057-00 | METAL GLAZE 2.2K 5% | 1/10W |
| R641 | 1-216-085-00 | METAL GLAZE 33K 5% | 1/10W | R748 | 1-216-067-00 | METAL GLAZE 5.6K 5% | 1/10W |
| R650 | 1-216-041-00 | METAL GLAZE 470 5% | 1/10W | R749 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R652 | 1-216-109-00 | METAL GLAZE 330K 5% | 1/10W | R750 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R653 | 1-216-109-00 | METAL GLAZE 330K 5% | 1/10W | R753 | 1-216-069-00 | METAL GLAZE 6.8K 5% | 1/10W |
| R660 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W | R754 | 1-216-057-00 | METAL GLAZE 2.2K 5% | 1/10W |
| R661 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W | R755 | 1-216-057-00 | METAL GLAZE 2.2K 5% | 1/10W |
| R662 | 1-216-033-00 | METAL GLAZE 220 5% | 1/10W | R759 | 1-216-072-00 | METAL GLAZE 9.1K 5% | 1/10W |
| R664 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W | R760 | 1-216-066-00 | METAL GLAZE 5.1K 5% | 1/10W |
| R665 | 1-216-097-00 | METAL GLAZE 100K 5% | 1/10W | R761 | 1-216-748-11 | METAL GLAZE 39K 5% | 1/10W |
| R671 | 1-216-033-00 | METAL GLAZE 220 5% | 1/10W | R762 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| R699 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W | R764 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W |
| R701 | 1-216-105-00 | METAL GLAZE 220K 5% | 1/10W | R790 | 1-216-059-00 | METAL GLAZE 2.7K 5% | 1/10W |
| R702 | 1-216-081-00 | METAL GLAZE 22K 5% | 1/10W | R801 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R703 | 1-216-089-00 | METAL GLAZE 47K 5% | 1/10W | R802 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R704 | 1-216-097-00 | METAL GLAZE 100K 5% | 1/10W | R803 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R705 | 1-216-085-00 | METAL GLAZE 33K 5% | 1/10W | R804 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R706 | 1-216-117-00 | METAL GLAZE 680K 5% | 1/10W | R805 | 1-216-037-00 | METAL GLAZE 330 5% | 1/10W |
| R707 | 1-216-091-00 | METAL GLAZE 56K 5% | 1/10W | R806 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R708 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W | R807 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R709 | 1-216-097-00 | METAL GLAZE 100K 5% | 1/10W | R808 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R715 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W | R809 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R716 | 1-216-065-00 | METAL GLAZE 4.7K 5% | 1/10W | R810 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R717 | 1-216-061-00 | METAL GLAZE 3.3K 5% | 1/10W | R811 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R718 | 1-216-061-00 | METAL GLAZE 3.3K 5% | 1/10W | R812 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R719 | 1-216-061-00 | METAL GLAZE 3.3K 5% | 1/10W | R813 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R720 | 1-216-085-00 | METAL GLAZE 33K 5% | 1/10W | R814 | 1-216-025-00 | METAL GLAZE 100 5% | 1/10W |
| R721 | 1-216-081-00 | METAL GLAZE 22K 5% | 1/10W | R815 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R722 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W | R816 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R723 | 1-216-079-00 | METAL GLAZE 18K 5% | 1/10W | R817 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W |
| R724 | 1-216-085-00 | METAL GLAZE 33K 5% | 1/10W | R818 | 1-216-037-00 | METAL GLAZE 330 5% | 1/10W |
| R725 | 1-216-045-00 | METAL GLAZE 680 5% | 1/10W | R819 | 1-216-037-00 | METAL GLAZE 330 5% | 1/10W |
| R726 | 1-216-073-00 | METAL GLAZE 10K 5% | 1/10W | VARIABLE RESISTOR | | | |
| R727 | 1-216-077-00 | METAL GLAZE 15K 5% | 1/10W | RV201 | 1-228-998-00 | RES, ADJ, METAL GLAZE 220K | |
| R728 | 1-216-027-00 | METAL GLAZE 120 5% | 1/10W | RV202 | 1-228-998-00 | RES, ADJ, METAL GLAZE 220K | |
| R729 | 1-216-035-00 | METAL GLAZE 270 5% | 1/10W | RV203 | 1-228-993-00 | RES, ADJ, CARBON 4.7K | |
| R730 | 1-216-039-00 | METAL GLAZE 390 5% | 1/10W | RV204 | 1-228-993-00 | RES, ADJ, CARBON 4.7K | |
| R731 | 1-216-072-00 | METAL GLAZE 9.1K 5% | 1/10W | RV209 | 1-228-999-00 | RES, ADJ, METAL GLAZE 470K | |
| R732 | 1-216-057-00 | METAL GLAZE 2.2K 5% | 1/10W | RV210 | 1-228-993-00 | RES, ADJ, METAL GLAZE 4.7K | |
| R733 | 1-216-051-00 | METAL GLAZE 1.2K 5% | 1/10W | RV215 | 1-228-995-00 | RES, ADJ, METAL GLAZE 22K | |
| R734 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W | RV216 | 1-228-995-00 | RES, ADJ, METAL GLAZE 22K | |
| R735 | 1-216-081-00 | METAL GLAZE 22K 5% | 1/10W | RV601 | 1-230-521-11 | RES, ADJ, SOLID 2.2K | |
| R736 | 1-216-081-00 | METAL GLAZE 22K 5% | 1/10W | RV602 | 1-230-522-11 | RES, ADJ, SOLID 4.7K | |
| R737 | 1-216-049-00 | METAL GLAZE 1K 5% | 1/10W | RV603 | 1-230-527-11 | RES, ADJ, SOLID 100K | |
| R738 | 1-216-061-00 | METAL GLAZE 3.3K 5% | 1/10W | RV604 | 1-230-523-11 | RES, ADJ, SOLID 10K | |
| R739 | 1-216-061-00 | METAL GLAZE 3.3K 5% | 1/10W | | | | |

When indicating parts by reference number, please include the board name.

SP-2**DM-18**

| No. | Part No. | Description | Remark | No. | Part No. | Description | Remark |
|-------------------------------------|--------------|----------------------------------------|---------|-------------------|--------------|----------------------------|--------|
| RV701 | 1-228-996-00 | RES, ADJ, CARBON 47K | | <u>TRANSISTOR</u> | | | |
| <u>SWITCH</u> | | | | Q007 | 8-729-901-01 | TRANSISTOR DTC144EK | |
| SW500 | 1-553-725-21 | SWITCH, SLIDE | | <u>RESISTOR</u> | | | |
| <u>CRYSTAL</u> | | | | R001 | 1-216-069-00 | METAL GLAZE 6.8K 5% 1/10W | |
| X001 | 1-567-346-11 | OSCILLATOR, CERAMIC (5MHz) | | R004 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| X002 | 1-567-121-00 | VIBRATOR, CRYSTAL (4.19MHz) | | R005 | 1-216-083-00 | METAL GLAZE 27K 5% 1/10W | |
| X080 | 1-567-192-11 | OSCILLATOR, CERAMIC (4MHz) | | R006 | 1-216-689-11 | METAL CHIP 39K 0.50% 1/10W | |
| X201 | 1-567-699-21 | VIBRATOR, CRYSTAL | | R007 | 1-216-691-11 | METAL CHIP 47K 0.50% 1/10W | |
| X600 | 1-567-419-11 | VIBRATOR, LITHIUM TANTALATE (11.58MHz) | | R008 | 1-216-089-00 | METAL GLAZE 47K 5% 1/10W | |
| ***** | | | | R009 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| *A-7061-074-A DM-18 BOARD, COMPLETE | | | | R010 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| ***** | | | | R011 | 1-216-059-00 | METAL GLAZE 2.7K 5% 1/10W | |
| <u>CAPACITOR</u> | | | | R012 | 1-216-222-00 | METAL GLAZE 10K 5% 1/8W | |
| C001 | 1-163-021-00 | CERAMIC CHIP 0.01MF | 50V | R013 | 1-216-049-00 | METAL GLAZE 1K 5% 1/10W | |
| C002 | 1-130-483-00 | MYLAR 0.01MF | 5% 50V | R014 | 1-216-085-00 | METAL GLAZE 33K 5% 1/10W | |
| C003 | 1-130-491-00 | MYLAR 0.047MF | 5% 50V | R015 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| C004 | 1-130-491-00 | MYLAR 0.047MF | 5% 50V | R016 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| C005 | 1-126-157-11 | ELECT 10MF | 20% 16V | R017 | 1-216-057-00 | METAL GLAZE 2.2K 5% 1/10W | |
| C006 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V | R018 | 1-216-077-00 | METAL GLAZE 15K 5% 1/10W | |
| C007 | 1-163-038-00 | CERAMIC CHIP 0.1MF | 25V | R019 | 1-216-206-00 | METAL GLAZE 2.2K 5% 1/8W | |
| C008 | 1-124-282-00 | ELECT 22MF | 20% 16V | R026 | 1-216-679-11 | METAL CHIP 15K 0.50% 1/10W | |
| C009 | 1-124-589-11 | ELECT 47MF | 20% 10V | R030 | 1-216-073-00 | METAL GLAZE 10K 5% 1/10W | |
| C010 | 1-124-257-00 | ELECT 2.2MF | 20% 50V | ***** | | | |
| C011 | 1-124-282-00 | ELECT 22MF | 20% 16V | | | | |
| <u>CONNECTOR</u> | | | | | | | |
| CN001 | 1-563-311-11 | CONNECTOR, BOARD TO BOARD 10P | | | | | |
| <u>DIODE</u> | | | | | | | |
| D001 | 8-719-801-45 | DIODE 1SS187 | | | | | |
| D009 | 8-719-801-45 | DIODE 1SS187 | | | | | |
| D010 | 8-719-104-22 | DIODE 1SS123 | | | | | |
| <u>IC</u> | | | | | | | |
| IC001 | 8-759-937-25 | IC BA6303 | | | | | |
| IC002 | 8-759-132-40 | IC UPC324C | | | | | |
| IC003 | 8-759-240-66 | IC TC4066BP | | | | | |
| <u>JUMPER RESISTOR</u> | | | | | | | |
| JR001 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | | | | | |
| JR002 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | | | | | |
| JR003 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | | | | | |
| JR004 | 1-216-295-00 | METAL GLAZE 0 5% 1/10W | | | | | |
| JR005 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | | | | | |
| JR006 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | | | | | |
| JR007 | 1-216-296-00 | METAL GLAZE 0 5% 1/8W | | | | | |

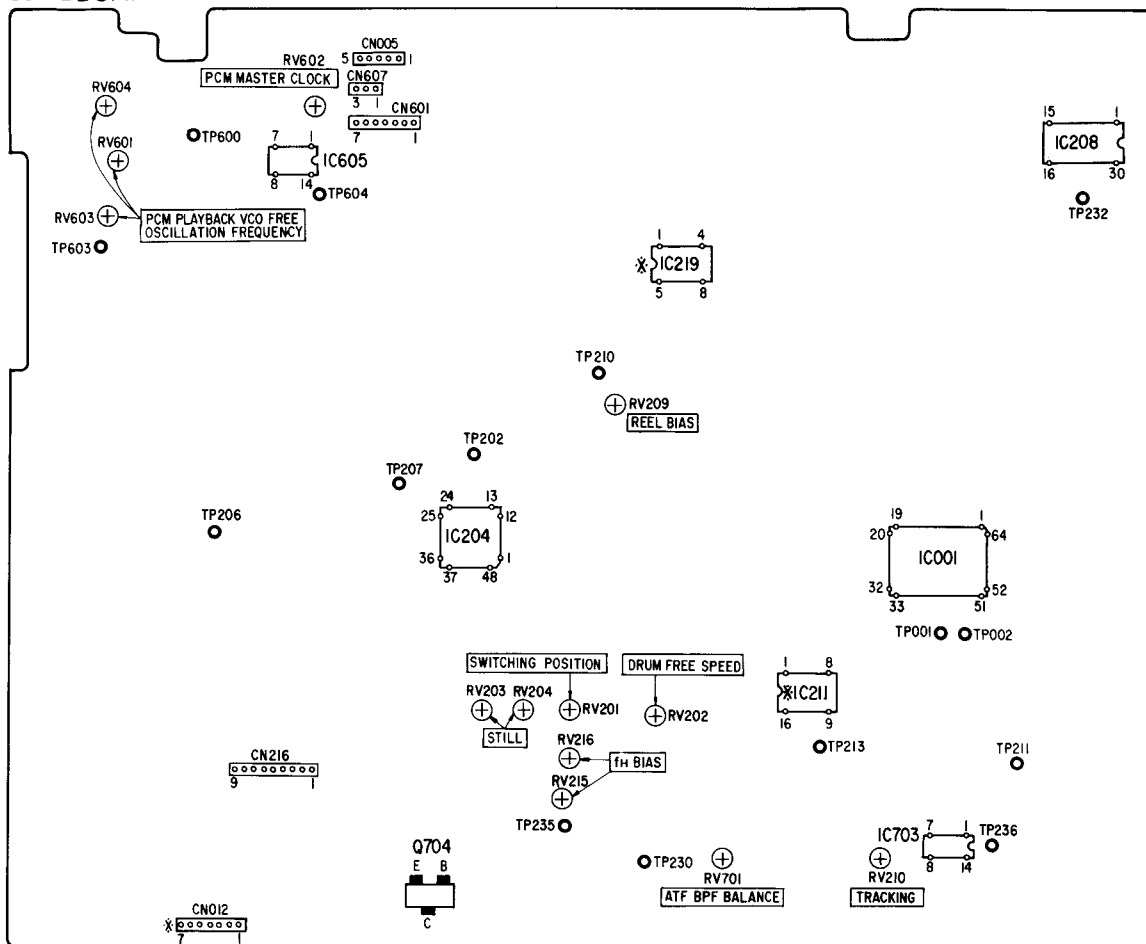
When indicating parts by reference number, please include the board name.

SECTION 5

ELECTRICAL ADJUSTMENT

5-1. ADJUSTMENT ELEMENT LOCATION

SP-2 BOARD (COMPONENT SIDE)



*: indicates a adjustment element mounted on the conductor side.

EV-S650PS
RMT-439

9-972-595-81

Sony Corporation
Consumer Video Group

—50—

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